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American Railroad Journal.

Saturday, November 1, 1851.

Canada.

Quebec and Richmond R. R.—We have received a copy of a report of a survey of the route of this proposed road, by A. C. Morton, Esq. The instructions to Mr. Morton contemplated the crossing of the St. Lawrence, either at Pt. Platon or St. Nicholas, the former 35 and the latter 8½ miles above Quebec, and the building of a portion of the road on the north bank of the river. After leaving Richmond, the country is favorable to a railroad, and it is only when the river is approached, that serious difficulties are met with. They were so serious in the Pt. Platon route, as to lead to its abandonment, and the report is based upon a survey of the former.

By this route the whole distance from Richmond to Quebec is 101½ miles. The cost of construction is estimated at \$2,072,200. In descending from the table lands a great deal of heavy work is required. The total amount of earth excavation on the line is stated at 2,234,000 yards, and 209,000 yards of rock excavation. A maximum grade of 70 feet to the mile is necessary in ascending from the river. The unfavorable character of this route, and the

objection to two distinct lines of railroad, made necessary by crossing the river, determined the company to institute further surveys, with the view of ascertaining the practicability of a route entirely on the south side of the St. Lawrence, and entering the valley of that river opposite Quebec. This survey was conducted under the direction of R. T. Bailey, Esq. The line surveyed by Mr. Bailey, leaves the line already described, at Black river, 18 miles from Point Levi opposite Quebec, and 79 miles from Richmond, and crossing the Richelieu and the Etchemin rivers, reaches through the depression caused by the latter stream, the level of the St. Lawrence. The distance saved by this route over the one surveyed by Mr. Morton, is 4½ miles. The maximum grade is only 50 feet, against 70 on the other, and the difference in cost is £48,012 in favor of the route last surveyed. Another inducement to the adoption of this route, is the fact, that in case the Halifax and Quebec road should be built, of which there is a strong probability, a convenient connection could be formed, and the Quebec and Richmond road would become a part of the great trunk line through the Provinces. Influenced by these considerations, the directors of the company adopted the modification of the route as surveyed by Mr. Bailey, and urge upon the citizens, and the corporation of Quebec, the immediate commencement of the work of construction.

The amount of means provided for the road is £25,000 of private subscriptions, and £100,000 of expected subscription by the corporation of Quebec. We also learn that the company have an offer of a private subscription from the States of £62,500, making an aggregate of £187,500. The government guarantee will be available for one half the cost of the road, so that if the above subscriptions can be relied upon, the company are in good condition to commence work.

The road is an exceedingly important one to Quebec, as that city occupies an isolated position, and is shut out, for nearly six months each year, from all intercourse with the commercial world.—The fact that Quebec is to be the political capital of the Canadas for the ensuing four years, will give great strength to this enterprise. We have no idea that the government of Canada, and the city of Quebec, will be content to remain without a road, which would connect that important city with the railroad system of Canada and the United

States. The commercial importance of the road will hardly exceed that derived from the pleasure travel which will be attracted over it to Quebec and the vicinity, and in return to the White Mountains via the Atlantic and St. Lawrence railroad.

Toronto and Lake Huron Railroad.—The ceremony of commencing work on this road took place on the 15th inst. The ceremony of turning the sod was performed by the Countess of Elgin, who, with a silver spade, of the ordinary size, took up a piece of earth and deposited it in a barrow, which His Excellency wheeled to a distance. The spade was presented to her by Mr. DeWitt, the Chief Engineer.

Great Western Railroad.—To enable the Great Western Canadian railroad company to carry out the project of building a road to commence at the Suspension Bridge, at Niagara Falls, and to terminate at Windsor, on the Detroit river, opposite to Detroit, it was voted by the Central line of roads of this State, a short time since, to subscribe for the stock to the amount of \$500,000, to be divided as follows:

Albany and Schenectady company.....	\$25,000
Utica and Schenectady company.....	200,000
Syracuse and Utica company.....	75,000
Rochester and Syracuse company.....	125,000
Niagara Falls company—who connect with Canada.....	75,000

Total\$500,000

The directors of the Utica and Schenectady company have issued circulars, calling upon its stockholders for permission to make the subscription.

The Great Western road will be 227 miles in length, and is estimated to cost \$5,000,000. The Provincial government guarantees the payment of the interest on the bonds of the company, at 6 per cent annual interest, for one half the cost of the road.

The capital authorised by law is.....\$6,000,000
Estimated cost of construction..... 5,000,000

Municipal subscriptions raised in Canada.....	\$550,000
Private do. do.....	300,000
Contractors stock.....	800,000
American subscriptions.....	1,000,000

Total stock.....\$2,650,000
Provincial 6 per cent guarantee bonds.. 2,650,000

\$5,300,000

The distances by the different routes from New

York city through our State to Michigan city, at the head of Lake Michigan, a point common to the routes on both sides of Lake Erie, is as follows:

By way of Detroit, the proposed route, Albany, Niagara, and the Gt. Western road.....	899 miles.
By way of the Erie railroad, Dunkirk and Toledo.....	925 "
By way of Albany, Buffalo and Toledo.....	952 "
Estimate of gross annual receipts.....	\$850,000
Estimate of cost of operating the road	\$350,000
Six per cent on \$2,500,000 bonds.....	150,000
Twelve per cent on \$2,500,000 stock	300,000
	800,000

Leaving a surplus of..... \$50,000

Buffalo and Brantford Railroad.—The object of this road is to connect Buffalo with the Gt. Western railroad of Canada at Brantford, 75 miles from Fort Erie, opposite the former place. We learn that the grading and bridging of the whole line has been contracted for by Mr. A. DeGraff, of Dayton, Ohio, who is to prepare the roadbed for the iron, for \$400,000. The road is of easy construction—the maximum grade being only 30 feet to the mile.

The Railway to Richmond.—We are glad to learn that hope is reviving as to the commencement of this much desired work. It is now stated that parties in Portland are willing, and have even authorized Mr. Morton to take stock to the amount of \$62,500. We wait with anxiety for our city council taking definite action in this important enterprise.—*Quebec Gazette.*

Patent Law.

Opinion of Judge Kane, delivered before the United States District Court, Pennsylvania, in the Case of Detmold vs. Reeves, on a Motion for an Injunction, September, 1851.

This is an application for a special injunction to restrain the defendants from further violating the complainant's patent.

The complainant, Mr. Detmold, is the assignee, and as such, the patentee in this country of an invention made by Mr. Faber du Faur, and patented by him in 1840 and 1841, in Bavaria and Wurtemberg. The American patent was issued in 1842, but it was amended and re-issued in 1845.—It is for "a new and useful invention for generating and applying heat;" and its immediate subject is a new mode of collecting, conducting, and using the combustible gases that ordinarily escape from the tunnel head of the blast furnace. The defendants are extensively engaged in the manufacture of iron, and it is charged that they are availing themselves of a part of the patented invention.

The interests which are involved in the controversy are very large, and may be seriously affected by the action of the court on the present motion. The argument, therefore, has had the widest range—embracing the originality of the patented invention, its practically useful character, its identity in principle with the apparatus employed by the defendants, the right of the inventor and his assignee to protection under the Patent Laws, the regularity of the proceedings of re-issue, and their legal effect, as well as the policy of postponing the summary relief, which it is the province of equity to administer, until after an adjudication of the merits by a court of law. But of these questions, which were argued by the learned counsel on both sides with characteristic ability, there is only one, after all, which, on a careful review of the whole ground, I deem it necessary to decide.

The claim of the complainant, as it has been expounded by his counsel in the present case, is for "a new method of economizing fuel, by using the waste combustible gases of the upper portion of the blast furnace, by drawing them off below the upper level of the charge, and conducting them through convenient passages to other fire-places or structures, there to be burned as fuel." It does not assert an exclusive right to the use of gases from the tunnel head, nor to the employment of pipes or tobacs for conducting gases; and very properly, for both of these were long ago familiar to the arts; its

essential characteristic is, that the gases are to be withdrawn "below the upper level of the charge."

Can such a claim be legitimately deduced from the terms of the patent before me? This is the controlling question of the cause.

The descriptive language of the specification does not designate, as the place of taking off the gases, a point "below the level of the charges;" an expression that would apply equally well to any and every such point; but one, "at or near that point of the furnace, where the limestone employed as a flux is completely calcined, and the reduction or deoxydation has not yet commenced;" and this point, it adds, "will generally be at about one-third of the height of the whole furnace below the tunnel head, or two-thirds above the bottom stone."

It is true, that the formal claim at the close of the instrument speaks of drawing off the gases at "one or more points below the top of the fuel;" and if the expressions *fuel* and *charges* can be regarded as convertible, this would certainly countenance the exposition of the complainants counsel. But it does not stand alone; and it cannot be interpreted fairly without giving effect to the words that follow it: "substantially as set forth in the above specification." There is then an important qualification of the broad language of the claim;—one that limits and defines it by a reference to the description that has gone before; and when the two parts are taken together, as they must be, they do not import the withdrawal of the gases from below the top of the charges generally, at any and all points whatsoever; but specially from at or near that point below the top of them, at which the flux has been calcined, and the deoxydation is about to begin.

The explanatory or practical reference, which is added in the specification, to a point one-third below the top of the furnace, makes this even more plain. For the indication of a point, ascertainable by simple measurement, as the one that will in most cases conform the structural arrangement to the rule deduced from scientific principle, is almost a declaration in terms, that the patentee had in view a particular point, and did not mean to apply his claim to all points below the charges alike.

So far, then, as the motion for an injunction asserts as its basis, that the defendants are using a device which has been specifically described and claimed in the patent, it cannot be sustained; since it is conceded that the defendants do not take out the gases "at or near the point at which the calcination is perfected, while the deoxydation has not yet begun;" nor at or "about one-third of the height of the tunnel," measured from the top. But the question still remains, whether the defendants are not violating the patent substantially; deriving from it information essentially connected with its subject matter; and only so far varying their structure in form and proportion as to elude its terms.

There is no doubt, that he who has discovered some new element or property of matter, may secure to himself the ownership of his discovery, so soon as he has been able to illustrate it practically, and to demonstrate its value. His patent, in such a case, will be commensurate with the principle which it announces to the world, and may be as broad as the mental conception itself. But then the mental conception must have been susceptible of embodiment, and must have been in fact embodied in some mechanical device or some process of art. The abstract must have been resolved into the concrete. The patent must be for a thing, not for an idea merely.

This limitation, it may be said, denies to some of the more important products of mind, what it concedes to others of lower grade. But it is not the less true on that account. Men may be enriched or made happy by physical as well as by moral or political truths, which, nevertheless, go without reward for their authors. He who devised the art of multiplication could not restrain others from using it after him, without paying him for a license: The miner who first found out that the deeper veins were the richer in metal, could not compel his neighbor to continue digging near the surface.

The more comprehensive truths of all philosophy, whatever specific name we give to it, cannot be specially appropriated by any one. They are

almost elements of our being. We have not reasoned them out perhaps, and may even be unconscious of their action; yet they are about us, and within us, entering into and influencing our habitual thoughts and pursuits, and modes of life, contributing to our safety and happiness; and they belong to us as effectively as any of the gifts of Heaven. If we could reach the laws of nature, they would be, like water and the air, the common property of mankind; and those theories of the learned, which we dignify with this title, partake, just so far as they are true, of the same universal diffused ownership. It is their application to practical use, which brings them within the domain of individuals; and it is the novelty of such an application, that constitutes to it the proper subject of a patent.

But the contract of the public is not with him who has discovered, but him who also makes his discovery usefully known. If he has discovered much, and discloses little—if there has been revealed to him one of the *arcana* of nature, and he communicates to the world only some one or more of its derivative and secondary truths, he patents no more than he has proclaimed. He will not be allowed afterwards, when the extent of his right shall be the subject of controversy, either by expanding into a general expression what was limited before in a particular form, or by tracing out for us the line that leads back from consequences to their remoter cause, to initiate us inferentially into the radical history of his invention, and then argue that he had described it by implication from the first, and so claimed ownership of it in his patent.

If, as it had been contended with great apparent force, M. Faber du Faur was really the discoverer of the true theory of the Blast Furnace, so as to determine from it the point at which the carbonic oxide, having performed its chemical function, might be withdrawn without sensible injury; if he knew that the gases, when taken from openings nearer the boshes, were capable of more intense combustion, but that their withdrawal so low down impoverished the action of the furnace, and that when used at the tunnel head, after they had performed successively the offices of deoxydation the mineral, calcining the flux, and vaporizing the water of the charges, they were less available as fuel in consequence of their increased impurity;—and, if knowing this, he had taught the iron master how to choose the best place for withdrawing the gases, having reference to the dimensions of his furnace, and the different sorts of fuel and mineral and flux employed in it, and with reference also, perhaps, to the purpose for which the flame of the gases was to be applied after they had been withdrawn; no one can doubt that he would have conferred a signal benefit upon the arts of the world. And if he had, besides this, devised some form of structure, some material arrangement, by which his discovery might be applied to use, I would be most reluctant to say, that his patent, properly drawn out, should be limited to the mere mechanical illustration, and could not cover effectually the whole ground of his discovery.

But M. Faber du Faur and his assignee, Mr. Detmold, have not done this. They have announced no new principle of science, no natural law. They indicate to us the place at which the gases should be taken out, first, by reference to a scientific problem, which they leave unsolved, and next, by a proximate reference to mechanical measurement. There is not, so far as my inquiries have gone, anything less definitely settled among the skillful in these matters, than the point at which the calcination of the flux is completed, and the deoxydation of mineral begins. Some deny altogether that any one point can ever satisfy both of the conditions, for they assert that the reduction always begins before the calcination is perfected; and all concur that the point, if there be one, must vary with the form and proportions of the furnace, and the chemical elements of the ore, the flux, and the fuel, and that it is, moreover, affected sensibly by atmospheric changes.

This indication is too vague, therefore, and under the varying circumstances, to which it must be applied in practice, too erroneous also, to vindicate for the patented discovery the broader or generic character.

The other indication, which refers to a propor-

tionate distance from the tunnel head, "one-third or thereabouts," is merely specific.

The interpretation, therefore, which I am constrained to give to the part of Mr. Detmold's patent, which is involved in the present discussion, limits his claim to the formal arrangement, without an assertion of right to any dominant principle. The defendants have perhaps derived instruction from his descriptions, and may even to some extent have modelled their furnace, with its appendages, upon a theory which they suggested. But it does not appear to me that they are intruding or have infringed his patent.

The motion for injunction must be dismissed.

Messrs. Harding, Campbell, Hazlehurst, and Cadwalader, for the motion. Messrs. Sheppard, Gerhard, Meredith, Williams, and Mallory contra.

Ohio and Pennsylvania Railroad. AN EXCURSION.

Yesterday we had the pleasure of making an excursion on the Ohio and Pennsylvania railroad to a point about ten miles west of Brighton. We left the Federal street station in the regular morning train, in a car especially provided for the excursionists, amounting to about forty gentlemen, the officers of the road, members of the press, and invited guests. On our arrival at Brighton, our car was fastened to the fine locomotive Canton, and we started on our tour of exploration. The first object of interest which attracted our attention, was the fine railroad bridge across the Beaver. Here the train stopped, and the company got out to examine the structure. It is 750 feet long, erected on piers of stone, of as fine workmanship as we ever saw. The wood work is also of the best description, giving one an idea of great solidity and durability. The height of the bridge is 50 feet from the water to the track.

From this point the road begins the ascent to the summit, at the rate of 40 feet to the mile, and keeps near the Beaver river until we come to Wallace's run, which is crossed by a trestle bridge, 80 feet high, the trestles resting on stone piers. The whole height of the bridge from the bottom of the run to the track, is 130 feet. This bridge is built on a curve in the road, and is also curved to suit its position. The wood work of this bridge, as well as that across the Beaver, was built by Messrs. A. & I. Patterson, of Allegheny, and reflects great credit upon those enterprising contractors.

Between the Beaver river and Wallace's run, the scenery is very fine, occasional glimpses being caught of the river, and of the bold and striking scenery along its banks.

From Wallace's run the road leaves the Beaver river, and winds among the hills, steadily ascending, until it reaches the summit, 8 miles from Brighton, having obtained an elevation of 300 feet. At this point, there is a deep cut, about half a mile long, and at its deepest point, 72 feet in depth, nearly the whole of it a rock formation. This work took about two years, and cost \$48,000.—This heavy work delayed the road for some time, and some croakers thought it would not be finished for many months to come. Their prognostications have failed, for we can testify that we passed through it in a railroad car, drawn by the whistling locomotive, amid the shouts of the people assembled on the banks, 70 feet above us, and the roaring of artillery. The great work is done. The locomotive has passed the summit of the hills which divided the valley of the Ohio river from the table lands of Ohio, and thus has overcome the chief obstruction between Pittsburg and St. Louis.

In the middle of the deep cut the train stopped, and the company got out to examine the stupendous work which had been performed, and there was but one expression, that of surprise and gratification at the great feat which had been accomplished.

From the summit we proceeded about 2 miles further, where we overtook the tracklayers, having come with the train about 38 miles from Pittsburg. At this point are some embankments 50 feet high, which we were informed were the last of the heavy work—beyond this point the grading being comparatively light.

The grading and bridging is about finished the whole distance to Massillon, a distance of 110

miles from Pittsburg. Four gangs, comprising four hundred men, are now engaged in laying the track between Brighton and Alliance, and it is confidently expected that the track laying will be finished to Alliance by the 15th of December, and to Massillon by the first of January, when we shall see a stream of travel through Pittsburg such as has never been witnessed before.

Having spent some time in looking at the work, we re-entered the cars, and started on our return, with the locomotive Salem, which had come out on purpose to take us back. When we arrived at the Merriek House we found a fine dinner awaiting us, of which the company partook with appetites sharpened by the ride. After the cloth was removed, speeches were made, and toasts drank suitable to the occasion. We took no notes, and only say that all were excellent and in good taste, and that nothing occurred to mar the harmony and good fellowship of the occasion. Among the speakers were Gen. Robinson, the able and enterprising President of the road; S. W. Roberts, Esq., the experienced and most efficient Chief Engineer; Hon. A. W. Loomis; Hon. Judge McClure; Wilson McCandless, Esq.; and Morgan Robertson, Esq. Mr. Roberts gave a very interesting account of the progress and prospects of the road, which was received with rounds of applause.

At four o'clock we took our seats in the car, and at ten minutes past four started for Pittsburg, arriving at the Federal Street station at 6 minutes before 5, making the trip of 28 miles, from Brighton to Pittsburg in exactly 44 minutes, including 4 minutes lost in making two stoppages. From Rochester to Sewickly, 13 miles, the time was 17 minutes. For several miles the train ran a mile a minute. The locomotive used was the Salem, one of Norris' engines. Notwithstanding this high speed, the cars ran so quietly, that one could read the finest print with ease.—*Pittsburg Gazette, of the 24th inst.*

Ohio and Indiana Railroad and its Connections.

J. R. Strunghan, Esq., the Chief Engineer of this road, has just paid us a visit on business of the road, who furnishes us with the following facts:

The Central road of Pennsylvania is progressing with quiet, but unceasing energy. In a few months the traveller can go from Pittsburg to Philadelphia by railroad with the exception of thirty miles staging. The Portage road being used while the mountain division of the new road is being completed.

The Ohio and Pennsylvania road from Pittsburg to Crestline, will be completed to Massillon in January next, and to Wooster early in March, while the remaining distance is now in rapid progress. The eastern portion for twenty-seven miles is now in use and carries about four thousand passengers per week, and the track-layers are at work in Stark and Columbiana counties.

At Crestline, twelve miles east of Bueyrus, a point on the Cleveland and Columbus railroad, about three miles north of Galion, the Ohio and Pennsylvania road terminates, and then begins the Ohio and Indiana road, which runs to Fort Wayne, 131½ miles long.

This is the third link in the great chain of railroads direct from Philadelphia to the Upper Mississippi, and is the only legitimate extension of the eastern road at Crestline, as the Bellefontaine and Indianapolis road comes to Galion, and does not connect; thus giving the Fort Wayne road the sole advantage of this connection, although the Ohio and Pennsylvania company has located its road three miles farther south than a direct line, which they could have preferred, in order to accommodate the Bellefontaine company.

An election of Directors was held at Lima on the 10th inst., and resulted in the election of W. Meriman, President, and F. Adams, of Crawford, Henry Peters, of Wyandot, L. Bliss and T. K. Jacobs, of Allen, and Judge Hanna and P. Hoagland, of Fort Wayne. These are all safe men, and will build the road as fast as due economy will permit.

The line is already located as far west as Van Wert, Ohio, and the Engineers are actively engaged in extending the survey to Fort Wayne, Indiana, and the whole road will be in a condition to let to contract in three or four weeks.— *Ft. Wayne Times*

Pneumatic Pile Driving.

We copy the following from the transactions of the English Association of Civil Engineers, in reference to a new mode of constructing foundations for piers or bridges. The paper was read by Mr. John Hughes. The bridge was across the Medway, at Rochester:—

The bridge was described, as being designed to consist of three large openings, a central one of 170 feet in width, and two others, each of 140 feet in width, spanned by cast iron segmental girders, and of a passage to admit masted vessels to the upper parts of the river, across which a moveable bridge would be placed. Each of the river piers occupied an area of 1,118 square feet, and rested upon a series of cast iron cylinder piles, 7 feet in diameter, placed 9 feet apart longitudinally, and 10 feet transversely, so that there were fourteen under each pier. The cylinder piles in the abutments were 6 feet in diameter, of which the "Strood" abutment required thirty, and the "Rochester" abutment twelve. Each pile was composed of two, three, or more cylinders, 9 feet in length, bolted together through stout flanges; the bottom length had its lower edge bevelled, so as to facilitate the cutting through the ground. The bed of the river was originally presumed to consist of soft clay, sand, and gravel, overlaying the chalk, and accordingly the application of Dr. Potts' pneumatic method for forcing the cylinder piles into the ground, which had been successfully carried out in similar positions, was contemplated; but after a few trials, the ground was found to consist of a compact mass of Kentish rag-stone, so that the mere atmospheric action upon the piles, induced by a partial vacuum, would be ineffective in such a situation. It was therefore decided, that the pneumatic process should be reversed, so as to give each pile the character of a diving-bell; for which purpose one of the cylinders, 7 feet in diameter, and 9 feet in length, had a wrought iron cover securely bolted to it, through which two cast iron chambers, "D" shaped in plan, with a sectional area of about 6 square feet, appropriately called "air locks," projected 2 feet 6 inches above the top of the cylinder, and 3 feet 9 inches below the cover. The top of each "air lock" was provided with a circular opening, 2 feet in diameter, with a flap working on a horizontal hinge, and an iron door, 2 feet by 3 feet 4 inches, with vertical hinges below the cover; each "air lock" was also furnished with two sets of cocks, the one for forming a communication between the cylinders and the chamber, the other between the chamber and the atmosphere. Compressed air was supplied to the cylinder pile by a double-barrelled pump, 12 inches in diameter, and 18 inches stroke, driven by a 6 horse power non-condensing steam engine. At first, the expelled water was made to pass into the river, from beneath the lower edge of the pile; but when the stratum became so compact as to oppose a high degree of resistance to the passage of the air, an outlet was formed through the side of the uppermost cylinder, by the introduction of a pipe, having the form of a syphon, the long leg of which reached to the bottom of the pile, and was subject to the pressure of the condensed air on the surface of the water within, whilst the short leg, leading into the river, had the effect of relieving the amount of compression, provided a vacuum was once obtained in the body of the syphon. Such an effect was readily produced by connecting the summit with the exhaust side of the air pumps, by a pipe which could be opened or closed at pleasure. To insure the downward motion of the pile, and to give it a weight which should be at all times superior to the upward pressure, two stout-trussed timber beams were laid on the top of the cylinder, in a direction suitable for bringing the adjacent piles into action as counterbalance weights, by four chains passing over cast iron sheaves.

Two light wrought iron cranes were fixed inside the cylinder, the jibs of which swept over the space between the air locks and windlasses, inside and outside, for the purpose of hoisting the loaded buckets and lowering the empty ones.

The method followed in working the apparatus was found to be so simple in detail as to be perfectly intelligible to all the workmen employed.—The pumps being set in motion, the flap of one of

the air locks and the door of the other were closed; a few strokes compressed the air within the pile sufficiently to seal the joints, and whilst the pumping was in progress, the men passed through the air locks to their respective stations. When the water was shallow, the pile descended, by scarcely sensible degrees, as fast as the excavation by hand permitted; but when the water was deep, the excavation was carried down full 14 inches below the edge of the pile, which then descended, at once, through the whole space, as soon as the pressure was eased off.

A Remedy for Railroad Dust.

The greatest drawback upon the comfort and pleasure of railroad travelling is the dust nuisance. Upon most roads, though upon some much more than others, the dust, in dry weather, that is for about nine tenths of the time, pours into the cars in suffocating clouds covering the passengers with a coating of filth from head to foot. Where it prevails it destroys all the pleasure of travelling, and especially the important part of it derived from observing the surrounding country. It is very injurious to the health also, being inhaled unavoidably into the lungs, where it remains and lays the foundation for consumption, and serious pulmonary complaints. In England the railroads are never dusty, owing to the constant moisture of the climate. The railroad tracks are generally overgrown with grass. In this country the nuisance is so intolerable in the summer season as to drive many travellers from the railroad to the steamboat, whenever there is the power of choosing between them.

There are two methods of putting an end to this nuisance. One is to cover the track with coarse gravel carefully sifted, or with stone broken into small pieces. The New York company have covered several miles of their track with oyster shells, which is found to answer the purpose very well. The expense of this improvement is only about \$500 per mile. The cost of a layer of gravel sufficient to lay dust, would not exceed \$1,000 per mile, and would be repaid abundantly by the additional travel attracted to the road in almost every case. Many persons would travel on railroads in summer much more frequently than they now do, if they could be tolerably secure against being suffocated with dust.

The other remedy referred to, is to arrange or construct the passenger cars in such a way as to exclude dust. We believe that this much needed improvement has at last been devised. A gentleman of this city, a few days since, rode over the Vermont Central railroad, in a car furnished with a new invention expressly designed to exclude the dust. A better opportunity could not have been had to test the merits of the invention. There had been a drought of long continuance, the weather was hot, and the road was extremely dusty. But the success of the trial was complete.

The contrivance is as simple as it has proved effectual for the designed end. The air is forced into an opening in the top of the car through boxes into which a strong current is driven by the rapid motion. These boxes, while they admit the air freely, completely exclude the dust and cinders by means of a strainer or very fine net work of wire. The windows of the car are fastened and not expected to be opened. The air admitted from above passes out through the blinds arranged for the purpose in the side cars. In this way a constant and pleasant ventilation is kept up, and there is no poking out of heads to get knocked off or badly jammed.

Our informant, who was in the car as an ordinary and disinterested passenger, tells us that this simple and inexpensive invention was perfectly successful. While the passengers in the other cars were sweltering with heat, and begrimed with dust from head to foot, his car was agreeably cool, and entirely free from dust and cinders the whole way; so much so that a brush was quite unnecessary at the end of his journey on that road; but when he changed to a connecting road and a common car, he became almost suffocated with dust, and blinded with the cinders. The cinders are almost as great a nuisance as the dust.

This account of this valuable invention is fully confirmed by others, and being doubtless correct,

cannot be too strongly commended. The press throughout the country ought to urge upon railroad companies the importance of immediately adopting an improvement by which an incalculable addition can be made to the comfort and pleasure of the travelling public, at a very trivial expense.

Virginia Internal Improvement Convention.

We give below a portion of the address issued by the committee appointed by the Internal Improvement Convention, recently held at Richmond. It contains a great amount of interesting matter, and is important as indicating the state of the public mind in Virginia. We believe that the best results will grow out of this movement.

ADDRESS.

The committee appointed to report to the convention the most efficient means of achieving its important objects, have performed that duty, so far as the materials existed for a proper statistical exposition of the value of the trade of Virginia, as well as the facilities completed, or in progress, for its transportation to the exporting cities of the State.

The commercial prosperity of Virginia is based upon the employment of the Chesapeake ports; and no project for acquiring the materials or the means of exportation, can be successful, which does not contemplate their employment.

The country tributary to the Chesapeake, possesses advantages not surpassed by any other on the Atlantic. Nature has been so bounteous, that the difficulty has been, not so much to discover a good site for a city, but to discriminate between the numerous excellent locations presented, Norfolk, Richmond, Petersburg, Fredericksburg and Alexandria, have all been established to receive and conduct the trade of Virginia.

From the individuality of these local interests, it has been heretofore impossible to adopt any system of improvement calculated to promote the exclusive right of any one of the cities referred to—Apprehensive that the limited trade legitimate to each, might be diverted to some rival, impediments have been thrown in the way of great lines of communication with the interior of our own and other States, calculated, perhaps, to vary the local direction of some particular trade, but destined in the end, to compensate each of these cities, by its dividend of a trade far surpassing in magnitude and value, any particular loss. The evils of rivalry will, however, be no longer felt, each of these cities having received a line of internal communication, many of which are now converging to a common point of union; interests heretofore supposed antagonistic, are now harmonised in the completion of a plan common to them all, and weapons brightened by the conflict of a generous rivalry, are now wielded in the achievement of a common triumph. It is thus that the construction of the South Side railroad, and of the James River Canal, make the prosecution of the Virginia and Tennessee railroad, alike important to Lynchburg—to whose public spirit is so largely due the conception and execution of that great project—to Richmond and to Petersburg. The extension of the great Central railroad to the Ohio, no longer a subject of exclusive interest to Richmond, appeals to the support of Alexandria. The completion of the Dock Connections will connect Norfolk with the James River and Kanawha Canal, and interest that city in its extension to the Ohio. The Richmond and Danville railroad is upon the same principle, a work from which Petersburg and Richmond may derive common benefits.

Convinced, therefore, that their interest and duty alike, demand a cordial alliance, the cities of Virginia will hereafter bestow upon the extent of the great lines of improvement here indicated, their earnest and combined co-operation.

Since, however, the partial completion of these great improvements has already bestowed upon the cities of Virginia a large accumulation of trade, it becomes necessary to encourage the establishment of a Commercial Marine, of soil ships and steamers, to convey abroad our own trade, and exchange for it the productions of other nations. The ex-

port and import trade of Virginia is now taxed with transport coast-wise for exportation from northern cities; it is burthened with the charges of northern merchants; whilst the whole commercial profits resulting from freights, exchanges, as well as from the importation and supply of the goods received on exchange, result exclusively to northern capital and northern enterprise.

We state the fact in no spirit of sectional prejudice, but as a consequence of our own supineness. We think it time that a trade so circuitous, and a tribute so unworthy, should cease. We should now export from, and import into the Chesapeake cities of Virginia, by vessels owned and manned by Southern men. No State can expect to preserve its prosperity which does not provide for its citizens the varied pursuits in which industry and enterprise shall receive an adequate reward.

In estimating the present value of the Chesapeake trade so far as materials are at hand for a correct estimate, we will find that the James river and Kanawha canal, its principle tributary, contributed during the last year, \$6,123,865 49, the products of the interior; whilst it carried into the interior, merchandise and other articles, valued at \$9,727,224 29.

The business of the Central railroad has doubled within the past year, its downward tonnage amounting to 25,000 tons, and its upward transportation is perhaps one-half of that amount. The Richmond and Danville, the Richmond and Petersburg, and Richmond and Fredericksburg railroads, contribute considerable additions to the aggregate of trade upon the James river.

Amongst other important items of an export trade, we may mention that the total inspections of Virginia tobacco amount to 50,000,000 hogsheads of which the larger portion is shipped to Europe; whilst the remainder, with a large amount not inspected, is manufactured in the interior for consumption at home and abroad.

The flouring mills at Richmond, manufactured last year, 1,178,100 bushels, and are expected this year to manufacture 1,587,100 bushels. This flour is shipped to Rio, through northern houses, in vessels whose return cargoes consist chiefly of coffee. This coffee is in turn, sent back, in northern vessels, to Virginia, for consumption—the freights, commissions, and commercial profits of both the export and import trade, being a direct loss to the State of Virginia, to which this trade rightfully belonged.

During the present year, however, some of the most enterprising merchants of Richmond have shipped nine cargoes of flour directly to Rio, the vessels return to this port with hides, coffee, and other products of south America. We are more-over informed that a larger amount of goods will be imported this year to Richmond than has been imported in any one year for a series of years; and that the direct import would have been far larger but for want of ships in this trade, which compelled our merchants to ship through the northern ports.

During the year ending July the 1st, 1851, the foreign trade of James River gave employment to a number of foreign and American vessels. From a statement furnished from the Custom House in Richmond, it will be seen that the tonnage employed in the direct foreign trade between Europe and the waters of the James river amounts to nearly 30,000 tons. This amount itself is amply sufficient to give employment to two steamers of 1500 tons burden.

If it were in our power to present the commercial statistics of the cities of Norfolk, derived from the Roanoke river, the Dismal Swamp canal, and other resources,—the rapidly increasing trade of Alexandria, derived from the Chesapeake and Ohio canal, and from the country adjacent to her,—of Petersburg and Fredericksburg we do not doubt but that an amount of Chesapeake trade could be demonstrated adequate to sustain at once, by the energetic and united patronage of our merchants, a direct trade with Europe and South America. The material for this trade already exists. Any doubt, however, which may be entertained of the present amount of Virginia commerce becomes unimportant, in view of the immense accessions to follow the completion of the improvements referred to. "Whilst we pause to make the figures the

fact is upon us." A succinct statement of the works of artificial improvement now in progress and actually completed, will serve to embody the facilities upon which we may rely, and to develop the capacity of transportation upon which the future trade of Virginia must principally depend. We think, therefore, it sufficiently appears that looking alone at the present trade of our cities, we have ample encouragement to commence at once upon this undertaking, with the fair prospect of trade enough to ensure handsome profits to capitalists who may embark therein.

But, when we glance upon the future trade which these cities must enjoy, we are still more encouraged. We will first inquire in regard to the number of miles of railroads and canals now constructed. Your Committee have been furnished with the following very valuable statistics by the Second Auditor:

Statement of the Railroads in Virginia completed and in progress.		Completed.	Length.
Baltimore and Ohio railroad.....	251	90	
Richmond and Danville railroad.....	147	35	
Richmond and Petersburg railroad.....	22	22	
Clover Hill railroad.....	15	15	
South Side railroad.....	122	10	
Manassa Gap railroad.....	60	60	
Petersburg and Roanoke railroad.....	60	60	
Seaboard and Roanoke.....	77	77	
Appomattox railroad.....	9	9	
Winchester and Potomac railroad.....	32	23	
Virginia Central railroad (including Blue Ridge railroad.....)	138	98	
Virginia and Tennessee railroad.....	205	10	
Orange and Alexandria railroad (including branch to Warrenton, ten miles).....	100	10	
Richmond, Fredericksburg and Potomac railroad.....	76	76	
Greenville and Roanoke railroad.....	21	21	
North-western railroad.....	120	..	
Miles.....	1,455	565	
Chesapeake and Ohio canal.....	185	185	
James River and Kanawha canal.....	200	200	
Dismal Swamp canal.....	23	23	
Fred's valley plank road.....	40	1	
Staunton to James river.....	40	..	
Boydton to Petersburg.....	75	..	
Junction Valley.....	65	..	

It thus appears that there is now completed in Virginia 565 miles of railroad, and 418 miles of canals, and that there are now in course of construction, 890 miles miles of railroad, and 220 miles of plank road. We have, then the gratifying result, that there are nearly 2,000, miles of railroad and canal construction or in progress of construction, in our State. The appropriations for these works are already made, and the money has been almost entirely raised at home, without the necessity of incurring a foreign debt.

But this view becomes still more encouraging, when we recollect that these improvements will be finished, at farthest, within the next four years.—As each mile is finished, an increase will be given to the trade of our cities; and when the Virginia and Tennessee railroad, the Richmond and Danville railroad, and the Seaboard and Roanoke railroad are finished, they will be at once connected with a net work of railroads through North Carolina, South Carolina and Georgia, on the one hand, and Tennessee, Ohio, Kentucky, Alabama, Mississippi and Louisiana on the other. It is certainly a source of pride to know that we have quietly effected so much. Speculation would be at fault in estimating the trade that must follow the completion of these works. The rapid increase of our cities will be one certain effect, while the appreciation of real estate, and the profits of every industrial pursuit, will be increased. At the same time the heart of the patriot will rejoice that this acquisition of strength, wealth, population and power, must result in restoring the south to her former position in the Union, and may render that Union, as bequeathed to us by our forefathers, more stable and firm—its obligations everywhere observed, and everywhere sustained and beloved, for the benefits conferred upon its citizens.

Georgia has now 1,000 miles of railroad—South Carolina is extending her iron arms in every di-

rection, and in two or three years, every part of the State will be provided with railroad facilities. N. Carolina has giant schemes on foot, which she is prosecuting with a giant's strength. Tennessee will soon extend the Virginia railroad, and the railroad extending from Charleston and Savannah to Chattanooga, to Memphis, on the Mississippi.—Alabama, Mississippi and Louisiana are seeking connections with these roads, and soon we shall see the south more highly improved by railroad facilities than the north, owing to the level nature of the country, and the cheapness of labor and materials in the south. Charleston alone is moving with far seeing sagacity for this increased trade. We feel pride and pleasure in her means, and we heartily hope she may prosper in her former enterprise to establish direct trade by means of ships and steamers owned by southerners. We believe there is space enough, and a back country sufficiently ample, if we are true to ourselves, to secure the prosperity of all our southern towns; and their prosperity, so far from causing us to fall, will but add to our own prosperity. But how can the people of Virginia hope to contend with Charleston in a generous competition for this trade, unless equal facilities are provided in our harbors for shipping directly to Europe. If we pause in this contest, the trade will have been fixed in the direction of Charleston, and we may strive in vain to regain what is strictly our own.

To illustrate the advantages to be anticipated, we may refer to the enlightened and enterprising commonwealth of Massachusetts. The large expenditures made for the construction of railroads, and the results of that system have there vindicated the wisdom which dictated it.

In that State, the length of railroads in 1840, was 433 miles—it is now 1,033. The value of property in the several counties of the State has increased from \$299,878,329 in 1840, to \$590,531,881 in 1850—an increase in the value of property during ten years, of \$290,653,552, or about one hundred per cent.

In Boston, which is the centre of the whole system of Massachusetts railroads, the following result is obtained:

	Population.	Wealth.
1840.....	171,993	\$120,114,574
1850.....	269,874	266,646,484

Showing an increase of 60 per cent in population, and 140 in wealth.

There may be persons, however, incredulous that the trade of Virginia now exported from northern, western and southern cities, can be directed to the ports of the Chesapeake. It will not be doubted, that the greater portion of the products of the valley, and western Virginia, are destined for consumption in the northern States, or in Europe.—These products would adopt the most direct line of transit between production and consumption, but for the natural obstacles which intervene and condemn them to the tedious, tortuous and perilous navigation of the rivers and coast. The direct line of transit would pass through the Chesapeake ports of eastern Virginia.

So long as the route of the water-borne produce of western Virginia was cheaper than any artificial line of direct transit, any attempt to divert that trade might have been hopeless. The opinion that no railroad could succeed, unless it connected populous points, by a short line, has been reversed by experience. Considering the railroad and locomotive as almost a revolution for the south, we may be pardoned for referring to the causes which are now producing, through their agency, such important social, commercial and political results. Time has become an essential element in the value of merchandise and staple productions. No producing region, and no mercantile community, can adopt a slow and circuitous delivery, in competition with others producing and vending the same articles, with greater facilities of transportation than themselves. Travel and postal communication now tolerate no delay or impediment. It is impossible to present any formula to show how far shortening the time of transit is equivalent to a positive reduction of freight. The telegraph and express lines, everywhere well sustained, prove the estimated value of time to be very great; though it varies, of course, with the fear of competition,

with the value of the commercial subjects, and with the relative importance of individual transactions. But we see from the opening of the artificial lines of Boston, New York and Philadelphia, that the commercial patronage of the interior is immediately transferred to the most rapid and direct lines of outlet and intercommunication. It is thus that the great cities of the north have severally penetrated the interior with artificial lines, until they have taken from the open and untaxed current of the Mississippi, the commerce produced upon its borders. These great artificial outlets have been competing among themselves for the commerce of the interior, until they now offer, not only superior certainty, and reduced time of delivery, but they offer upon many articles cheaper freights than the river and coast routes referred to. We copy from the New Orleans Crescent a notice of the reversing of the natural current of trade, resulting from the construction of the great artificial lines referred to:

"For years past, cotton has gone up the Ohio river from Tennessee, through the Pennsylvania and New York canals, to the factories in the interior of these States, and often the cities of Philadelphia and New York. We recollect last September of one shipment of upwards of 700 bales shipped from Louisville, via the Ohio and New York canals to New York city. The freights were less than by the way of New Orleans, and the difference in exchange and insurance was near two per cent in favor of the northern route."

"The amount of cotton that passed up the Ohio last year is estimated, by one familiar with the trade, at sixty thousand bales. This season, nearly all the boats from the Tennessee and Cumberland rivers, bound up the Ohio river, are freighted more or less with cotton. The packets between Memphis and Louisville and Cincinnati, of which there are several lines, take cotton up the rivers nearly every trip.

"The quantity of tobacco that takes its course up the river from the lower Ohio, for the eastern markets, by northern routes, is rapidly increasing. That raised in Ohio and Kentucky above Cincinnati—and among the latter, the celebrated Mason county tobacco—nearly all goes by the way of the canals to the eastern markets. By a statement recently published, the difference in the cost of transportation from Louisville to New York, is four or five dollars per hoghead in favor of the northern route, while the article escapes the sweat which it undergoes on shipboard while passing through our latitudes.

"Grain is now carried from Wabash to New York by the canals, at the same cost of freight as is charged by the way of New Orleans; but by the northern route they incur no waste, nor risk of damage by heating, and save the whole cost of sacking, for it is carried in bulk, and the same number of measured bushels are delivered in New York as are received on boat from the shipper. The lard, pork and flour, from the same region are taking the same direction. Last autumn the rich region of Ohio, Indiana, and Illinois, were flooded with the local bank notes of the Eastern States, advanced by the New York houses, on produce to be shipped by them, by the way of the canals, in the spring.

"These moneyed facilities enable the packer, miller, and speculator, to hold on to their produce with the opening of navigation in the spring, and they are no longer obliged, as formerly, to hurry off their shipments during the winter by the way of New Orleans, in order to realize funds by drafts on their shipments. The banking facilities at the east are doing as much to draw trade from us as the canals and railways, which eastern capital are constructing.

"All the lead from the upper Mississippi now goes east by the way of Milwaukee. But the most recent and astonishing change in the course of the northwestern trade, is to behold, as a friend told us, the number of steamers that now descend the Upper Mississippi, loaded to the guards with produce, as far as the mouth of the Illinois river, and then turn up that stream with their cargoes, to be shipped to New York, via Chicago.

"The Illinois canal has not only swept the whole produce along the line of the Illinois river to the east, but is drawing the product from the Upper Mississippi through the same channel; thus de-

prising not only New Orleans, but St. Louis, of a rich portion of their trade."

To this we may add the fact that cargoes of corn have been recently shipped from Iowa, down the Mississippi, along the Illinois canal, by way of the lakes, to the city of New York.

The cause of this astonishing result may be explained.

Artificial lines afford not only the most speedy means of transportation, but the unity and system of their administration gives them great advantages over the efforts of individual enterprise. They have a basis of travel and mail monopoly which enables them to discriminate in favor of any specific article of commerce, the factorage and final results of which may be sufficient in general to indemnify them for the abatement of freights, whilst the revenue of the improvement is sustained by an increased charge upon business not subject to competition, or by the large amount of trade which they command. These exclusive resources, rapidity, certainty and safety of transportation, with the power of discrimination have enabled these great lines to wrest from the Mississippi so much of its produce.

To establish the capacity of artificial to compete with natural lines, we publish the following tabular statement, showing the contest between New York and New Orleans for the trade of the Mississippi:—

New York and New Orleans in Western Trade.

	N. Y. population.	Canal trade.
1840.....	2,429,721	66,303,896
1850.....	3,098,813	156,397,729

An increase of 25 per cent. in population, and 150 per cent. in trade, by canals, in ten years.

Produce of West received by N. Y. canals:

1842.....	\$22,752,013
1850.....	55,474,937

An increase of 145 per cent.

Produce of West received at New Orleans:

1842.....	\$43,716,045
1850.....	96,897,873

Or an increase of 120 per cent.; or a comparative increase by New York of 25 per cent. over New Orleans in western produce in five years. In the three years 1848, 1849 and 1850, the receipts at New Orleans by river were 2,312,121 bbls. flour; at New York, 8,636,207 bbls. pork; New Orleans, 1,536,817; New York, 211,018 bbls. beef; 200,901 bbls. New Orleans; New York, 264,052 bbls. wheat; New Orleans, 852,497 bushels; New York, 8,798,759. Corn, New Orleans, 9,758,750 bushels; New York, 11,178,228 bushels. Bacon, New Orleans, 135 million pounds; New York, 26 millions. Lard, New Orleans, 293 million pounds; New York, 21 millions. Butter, New Orleans, 8 million pounds; New York, 97 millions, &c.

We have adverted to these well-established facts, and explained the rationale of their operations, to show that the trade of the northern cities is derived by artificial ways from the great producing valleys of the west. If this be the case—if the productions prefer the lakes, railways and canals of the north to the river and gulf outlet—why should not the products of western Virginia, which almost circumnavigate their own State, which pursue a distant, indirect and unsafe line of transit, replete with every danger of river, cape and coast, prefer the direct communications through Virginia, and more congenial destiny of encouraging our own ports? There is no reason. Their anxiety to complete these artificial outlets proves its practicability. All the vast aggregate of trade, now existing in Western Virginia, destined for Atlantic exportation, may be safely added to that which we have already demonstrated as subject to be employed in this great enterprise. We may safely say that if all the existing commerce of Virginia, for exportation, could be collected in her own Atlantic ports, it would not fall short of twenty millions of dollars, nor would her consumption of merchandise be less. Besides this, the very organization of commercial facilities would guarantee an immense accession of mineral and agricultural productions.

We may properly add to those resources which are directly derived from Virginia alone, the products of the States connected with her, by the lines of improvement now under construction. Tennessee

and Kentucky, and North Carolina, will naturally find their most direct outlet through the Virginia and Tennessee, the Southside and Seaboard railroads, now under continuous and connected construction to the interior of the states referred to. The prosecution of the canal and Central railroad, or the construction of a branch road into the Ohio valley, will add much from those quarters; and but a few years will elapse before the perfected facilities will bring this great commerce to the legitimate ports of exportation. We will not enlarge upon the commercial results of extending these lines into the interior of the South-western States, and the national and international intercourse which will pour through Virginia, invigorating her local improvements, freighting her vessels, and filling her ocean steamers. It will be plain, upon investigation, that no cities south of Virginia have the commercial advantages of our own—none have the varied products, the local patronage, the rapid communication with the transatlantic cities. Enterprise is now doing all it can to shorten the line of ocean transit. In this the cities of Virginia cannot compete with Boston or New York for the transatlantic intercourse of the Northwestern States—but the mail and merchandise transportation, with the travel between the great southwest and the cities of Europe, belong legitimately to the Virginia ports on the Chesapeake, and will be certainly secured.

The committee respectfully recommend the adoption of the following resolutions;

Resolved, as the opinion of this committee, That lines of mail or other steamers, or other vessels, from Hampton roads to some port or ports of Europe, ought to be established; and Virginia, North Carolina, Tennessee and Kentucky, and such other Southern States as are disposed to aid in the enterprise, should be appealed to, and an appeal should also be made to Congress to bestow upon such line the same mail facilities which are extended to the North lines; and the bars which now obstruct the navigation of James river, should be removed.

Resolved, That committees be appointed to memorialise Congress and the Legislature of Virginia, and to prepare an address to the public upon the subject aforesaid, and the great importance to the people of Virginia, and the South generally, that they should conduct their own trade directly on their own bottoms, and with their own men and means.

Resolved, That lines of packet ships, screw-propellers, or mail steamers, ought to be established between the exporting cities of Virginia, and the West Indies and South America.

Resolved, also, That the people of Virginia be requested to hold meetings in their several counties, cities and towns to effect the objects of the foregoing resolution: and that to this end it may be recommended to them to adopt some organization by the appointment of standing and corresponding committees, or otherwise as them shall seem best.

Resolved, That the merchants of our Atlantic cities ought to import directly to our Virginian port the production of foreign countries used and consumed in this and the adjoining States; and that it be recommended to the merchants of the interior, and the people at large, to aid in this noble enterprise.

Atlantic and Gulf Railroad, Florida.

It is said that sufficient stock is taken to secure the completion of the work. The harbor of St. Mary's is to be taken on one side, and we believe that of Tampa on the other.

Tampa Bay is one of the most beautiful of harbors, and it is impossible to conceive one more safe, for it is literally a harbor within a harbor.—There are some 24 feet of water, over the bar at Egmond, and thence running some 20 miles up the bay; there is a depth of from 4 to 5½ fathoms, in many places approaching close to the shore, furnishing fine sites for navy or ship yards; and to the head of Old Tampa we have 16 feet of water, at the lowest tides, carried up to fine high bluffs, giving at ordinary tides from 18 to 20 feet, as shown by the survey of Lieut. Sims, U. S. N., in '43, '44. The country is one of the healthiest in the South, and is the natural shipping point of the fine counties of Marion and Hernando; lying im-

mediately north, there is a fine tract of country known as the Coast Hammock, intersected by numberless small streams, which fall into the Gulf, and lying between the Suwannee and Clearwater harbor; the coast here runs nearly north and south, consequently the proposed road would, from the latitude of the Cedar Keys, run nearly parallel; this country is now nearly inaccessible, being totally devoid of harbors, and having a shoal, rocky, coast; the road, therefore, would be the outlet for its productions, and it will become one of the finest sugar-producing countries in the Union.

At Tampa there is always ample depth of water, and a fine beating channel, and steamers and shipping can take their departure at any hour of the day or night.

Great Western Railway of Canada.

Construct a good traffic line cheaply and work it economically; the result is prosperity.

The Americans are a vast deal more successful in their railway undertakings as commercial enterprises, than we are. They make a thin traffic pay, while we are generally sunk in poverty on a rich traffic. The secret of American success is cheapness of construction, which is due, not only to their commercial heads, but to a considerate and merciful Government.

The Great Western railway of Canada is about to be made, and if it pay as well as its near neighbors, to which it forms a connecting link, its Shareholders have to look forward to something like a 14 per cent. per annum dividend, an amount of dividend which handsomely remunerates a man for his trouble and enterprise in diverting his capital to railway purposes, as well as pays him the ordinary rate of interest for his outlay.

The Great Western railway of Canada is for the most part a trunk line of 228 miles running from the city of Hamilton at the head of Lake Ontario to Port Windsor, opposite Detroit at the head of Lake Erie; from Hamilton to the Falls of Niagara there is an extension line, and to Port Sarnia at the foot of Lake Huron there is a branch. The whole is about 278 miles in length, and including the provision of plant and every necessary for the efficient working of the traffic, is to cost under a million and a half, or less than £5,000 a mile. Under £10 per mile per week profit from traffic would be equal to 10 per cent. dividend. The promoters show in their estimates a larger dividend than 10 per cent.

It is a fact that the line is extremely level, straight, and designed to be cheaply constructed. It is also the fact that the Michigan railway, extending 227 miles westward from Detroit a line which is the western continuation of the Great Western railway of Canada, now pays about 14 per cent. per annum on its outlay. And another fact worthy of being remembered is, that the average dividend of eight other railway companies whose lines lie on the eastern side of the Great Western railway of Canada is about 14 per cent. Forming the connecting link between such well-to-do lines, and having a level country to traverse, the Great Western railway of Canada might reasonably be regarded as a very hopeful project. With it are connected some highly respectable gentlemen both in England and America.—*Herapath's English Railway Journal.*

On the Conduction of Electricity through Water.

BY MR. F. C. BAKEWELL.

This paper gave the results of some experiments on the conduction of electricity by water, made with a view to prove that an electric current may be transmitted for a considerable distance through unprotected wires immersed in water. The experiments were conducted on Saturday, June 28th, in one of the Hampstead ponds. A thin copper wire (No. 20,) 320 feet long, was stretched across the pond, and two copper plates, 10 inches square, to which wires were soldered, were immersed to serve as conducting plates for the return current. A Smee's battery of two pair of plates was used; and when the connexion was made with a galvanometer on the opposite bank, a steady deflexion of 30° was maintained, and a strong blue mark was produced by a steel electrode on paper moistened with a solution of prussiate of potash in deluted muri-

atic acid. In this experiment the conducting plates were placed close to the wire and on opposite sides of it, so that the return current passed diagonally across the exposed wire. The water in this case appeared to act as a conductor and as a non-conductor at the same time, in proportion to the surfaces exposed to its influence. In the next experiment the wire was doubled, and a current of electricity from the same battery was transmitted through the wires, both being immersed in the water. In this case the deflection of the needle was more powerful, and it continued steady at 45°. From these experiments, which Mr. Bakewell stated were a confirmation of those undertaken by Mr. Bain and Lieut. Wright with a different object in 1841, he inferred that the exposure of a large surface, as the electric telegraph wires from post to post, presented greater opportunity for the dispersion of electricity in moist atmospheres than the points of connexion with the posts.—*London Architect.*

Northwestern Virginia Railroad.

The Parkersburg Gazette supplies the following interesting information:—

We learn that the first engineering party, under the direction of Wm. H. Small, Esq., was a few days since, at the "Oil Springs" on Hughes river, 23½ miles from Parkersburg, having followed very nearly the course of the Staunton and Parkersburg Turnpike. The railroad distance does not exceed that of the turnpike more than three-fourths of a mile, and the ground is very favorable. This party is proceeding up the North Fork of Hughes river.

The second party, under the direction of George Hoffman, Esq., is tracing a route up Worthington Creek and its laurel fork, and thence by waters of Stillwell creek to the N. W. turnpike, about 12 miles from Parkersburg; thence south of the turnpike to the north fork of Hughes river, intersecting the route of the first party at the mouth of Silver run.

A third party, under the direction of J. C. C. Hoskyns, Esq. has recently started from the west fork of the Monongahela, near Clarkburg, and will prosecute its surveys towards the Middle Island and Hughes river waters.

The Chief Engineer, accompanied by the President, is now engaged in a reconnaissance of the more southern routes from Three Fork west.—There are, it seems, a variety of practicable routes, differing but little in length and facilities for construction; but as the road, in addition to the accommodation it will afford to the country through which it passes, is destined to form a link in the "straight line road" from Baltimore to St. Louis and elsewhere, it is incumbent on the company to select such a route, as, while it is adapted to the wants and interests of our own community, will tend in the greatest degree to secure to the route of which it forms a part, a preference over other routes between the east and west.

Indiana.

Central Railroad.—The managers of this enterprise have been prosecuting it with great vigor of late. We have gathered the following facts in relation to the condition of affairs, which speak encouragingly for the early completion of this important line of railway:

Contracts are now completed from this city to Cambridge city for the gravelling, grading, culverting, and the principal part of the bridging. Some of the contractors between this city and Greenfield have commenced the work.—Between Greenfield and Cambridge city all the work is under way and part of the grading is completed. From Centerville to the State line all the work is under contract, including the bridge across the Whitewater river at Richmond. All of this work mentioned is to be finished by the first of October, 1852. The timber for the superstructure between Indianapolis and Cambridge city is all contracted for, to be delivered on the road at estimate prices, and to be paid for in stock and lands belonging to the company.

This road connects at the State line, beyond Richmond, with the Dayton and Western railway. This work is being prosecuted vigorously, and will be in operation in one year; and so much of the

Indiana central road will be completed in the same time as to allow the running of trains from Dayton to Centerville in a year from this time.

It is the intention of the company to apply the real estate they have to the construction of that part of the road between Centerville and Cambridge city. It will soon be put under contract.

The contracts thus far have been let to responsible men, and on terms highly favorable to the company.—*Indiana State Journal.*

Alabama.

Mobile and Montgomery Railroad.—The Mobile Advertiser in an article on the subject remarks:

"A direct line from here to Montgomery must be built—will be built; the only question is, as to time. The immense interests involved will force this result. In addition to the wants of commerce, such a line must be completed to supply the demands of travel—it being a link necessary to complete the railroad connections from New Orleans to Maine. Whether this connection will be effected by the road chartered from Mobile Bay to Columbus, or by a more direct route, is to be yet determined. That a road will be built we do not for a moment doubt, and the sooner the better. Montgomery should direct her energies to a union with Mobile; her attention diverted to any other point will only be a waste of time. There must be union of object and effort between the citizens of the two cities."

New York.

The Valley Railroad.—A meeting was held at Cuba, Allegany county, on the 6th ult., to consider the subject of the extension of the Valley railroad through that town, which is thirty-six miles south of Portage, the present terminus. Resolutions were adopted declaring the enterprise to be one of great importance to the people of Allegany, and to the contiguous counties that the line of the road to Pittsburg will intersect.—The route has been surveyed and found to be not only practicable, but the best that could be constructed. In view of the construction of the road to Cuba, it is believed that Rochester will become a "New York to all north of the spurs of the Allegany Mountains in Pennsylvania, and to southern New York as far as Elmira." Gen. C. T. Chamberlain, M. B. Chamberlin and J. O. Spencer, Esqs., were appointed a committee to correspond with the directors of the road, and take such action as may be advisable. We shall publish the proceedings to-morrow.

Railroad from St. Petersburg to Warsaw.

In our paper of the 18th ult. we gave a description of this great work which is just completed, connecting the two great cities of the Russian Empire. The following is a more particular account of the opening ceremonies:—

His Majesty accompanied by the Empress, the principal members of the Imperial family, several foreign Princes, and attended by the high officials of State and a numerous suite, quitted St. Petersburg at six o'clock on Sunday, and arrived at Moscow at half past six o'clock the same night.

At the terminus they were received by the civic authorities, the regiment of the Guards, and a splendid staff at the head of which the Emperor went into the city, amid the firing of guns and the acclamations of the people. Early the next morning the Imperial party, accompanied by their guests and suite, went in State to the Cathedral, where a solemn thanksgiving was offered. The Czar afterwards held a grand levee, and in the afternoon reviewed the Life Guards.

The Emperor has addressed the following rescript to the chief directors of roads, highways and public works, General Count Kleinmichel:—

"Count Petro Andrejewitsch.—When the construction of the Petersburg and Moscow railway was decided upon, eight years ago, I confided to you the carrying out of the undertaking projected by me, under the conviction that the zeal which you had always displayed in my service was a guaranty for the result. With heartfelt pleasure I now see my wishes realized; and although the work is not yet completed, it is nevertheless so far advanced that as a first trial a large division of the Guards was transported by it, and I, with my whole

family, have accomplished the journey from Petersburg to Moscow.

"On this occasion I have seen with the highest satisfaction the immense—in short the astonishingly stupendous works, which combine all the essentials of perfect taste and suitability. It is impossible for me to refrain from acknowledging that it is by your laudible and extraordinary zeal and energy alone, that the important Government scheme, which will confer the most essential and important benefits upon the country, has been carried out with such great rapidity. While I thus do full justice to your active and untiring energy, it is at the same time highly agreeable to myself to express again my sincere and cordial acknowledgements for your laudable services. Experience of your zeal assures me that the Petersburg and Moscow line will be completed by the 13th of November next, and thus throw open to the public a more rapid, and at the same time easier, mode of communication within the empire.

"I remain, your sincere well-wisher,

"NICHOLAS."

Liabilities of Railroad Companies.

In the Common Pleas Court at Portsmouth, John P. Lyman has received a verdict against the Eastern railroad corporation for damages to sheet iron which was injured by rain while on its way of transportation. It was decided that the company was answerable for damages, whether caused by negligence or not, and the controversy turned upon the amount of damage. The plaintiff claimed \$60—the defendant had offered \$30—the jury gave \$55.

North Carolina Railroad.

We are authorised to state that the contract for the completion of the first division of this road, extending from a point near Goldsboro', to a point six miles and a half beyond Raleigh, has been taken by a company of this place, at the engineer's estimates, and that the work will be prosecuted with all convenient despatch. It is expected that it will be complete in two years.

We are glad that this contract has been taken by residents of this section; we suggested this in our paper last May, and still entertain the idea expressed then, that it will prove a profitable investment.—*Wilmington Herald.*

Sacket's Harbor and Saratoga Railroad.

Hon. C. E. Clarke, of Great Bend, Jefferson County, New York, has published a pamphlet on the expediency of constructing the above railroad. He describes the country through which it passes as abounding in pine and hardwood timber, and admirably adapted for dairy farms, but at present undeveloped, in consequence of the absence of roads.

The proposed terminus is at the finest harbor on the lakes, where ships of the largest size were built and sheltered during the last war with England.—In aid of this road, the government of New York offers 250,000 acres of land, to be selected by the company near their line, at the low rate of five cents per acre—and under the influence of the road, it is supposed they must rise to eight or ten dollars per acre. On the completion of the Hoosic tunnel, this line must connect Boston with the lakes by the shortest route, via Saratoga and Sacket's Harbor, opening a great extent of forest country, and reducing the distance to about 326 miles, making this the shortest route from the Atlantic to Lake Ontario.

The following is an extract from the argument of Mr. Clarke:—

The actual distance from Sackets Harbor to Boston, by way of Carthage, Saratoga, the Vermont and Massachusetts, and the Fitchburg railroads, is only 310 miles; allowing for curvatures in the road not yet located, the distance would be 326 miles, making a difference in favor of the Sackets Harbor route—70 miles by water and 74 by railroad—in all 144 miles. This is happily for Boston the shortest route by which the ocean can be reach-

ed from the lakes. The route by the way of Oswego, Syracuse, and Albany, to New York, is about the same distance, but when it is considered that Boston is one day nearer to Europe than New York, it is respectfully suggested that a very great part of the commerce, seeking its way to Europe by the way of railroad, would find its way by the Boston route.

American Railroad Journal.

Saturday, November 1, 1851.

Pneumatic Pile Driving.

We invite attention to an Advertisement in our paper of to-day, for proposals to construct the piers for a railroad bridge over the Great Pee Dee, (for the Wilmington and Manchester railroad company,) upon the plan invented by Dr. Potts, of England. For piles, hollow tubes, made either of wood or cast iron, are used. From these the air is exhausted, and the pressure of the superincumbent atmosphere forces down the pile. The process is a very ingenious one, is based upon strictly scientific principles, and has been found to work admirably in England, where it has been extensively used. We hope to see it introduced into this country. Our ingenious mechanics can find a minute description of the whole process in the scientific journals of the day, and we believe they have nothing more to fear from failure, by its use, than from the ordinary mode of bridge building.

Railroad Convention at Abingdon.

A very large and enthusiastic convention was held at Abingdon, Va., on the 8th ult., by the friends of the great interior central line of railroads between the north and the south, running through central and western Virginia, eastern Tennessee, and through central Alabama, to the Gulf of Mexico. The principal object of the meeting was to raise the sum of \$200,000, the balance required to place the Virginia and Tennessee road under contract. The first 60 miles of this road, commencing at Lynchburg, is pretty nearly finished, and 70 miles more is nearly graded, leaving something like 80 miles not yet contracted for. From the spirit manifested at the convention, we presume this sum will be easily raised. If so, the whole line will be placed immediately under contract.

Great interest attaches to all the links of the line named, from its magnitude as a whole. It must, beyond all dispute, form by far the shortest route between the extreme north and south. The route, too, running for many hundred miles between the lofty ranges of the Alleghenies, will be an exceedingly attractive one to the pleasure tourist, as well as the shortest and most expeditious to the business traveller. Its importance in these respects, as well as in affording an outlet for a very extensive and fertile section of country, now without the means of getting to a market, is fully appreciated by the people along its line, and they are making strenuous efforts, particularly in Tennessee and Alabama, to secure its construction. In Tennessee, the East Tennessee and Georgia road is making rapid progress towards Knoxville. From this place to the Virginia line, nearly the whole distance is under contract, and will be completed, we have no doubt, simultaneously with the Virginia and Tennessee road. The East Tennessee and Virginia company are pushing forward the work on their line with all the despatch justified by the condition of the connecting lines. The completion of these is necessary to bring the former into profitable use, as East Tennessee is destitute of mar-

kets for its products. In the south, these can only be found on the seaboard. In Alabama, the Alabama and Tennessee railroad is being pushed forward with great energy, and is aiming to connect with the Tennessee roads, either at Chattanooga, or at some point in the northern part of Georgia. We here find, upon a line of over 700 miles in extent, the people of the different sections, while laboring for a specific object, working for the good of each other, as well as their own. The convention called together delegates scattered over the whole extent of this great line, and illustrated one of the great benefits of railroads, in promoting an acquaintance between widely separated sections of country, and in extending the means of social intercourse.

Winslow's Compound Rail.

We are glad to learn that this rail is steadily gaining in favor, and rapidly being introduced on our roads. Wherever used, it realises all the advantages claimed for it, that of forming a continuous track. By this means, the weight of the train is always sustained by a long extent of superstructure, instead of a single point, as is the case on the ordinary track, at the joints. It is the concurrent testimony of all companies that have used the compound rail, that the cost of repairs of track is almost entirely saved. The same cause that prevents the destruction of the track, saves a large part of the wear and tear of the machinery used. With the new rail, roads can be operated at much less expense, than with the present form, and trains can run at much higher speed with the same power, and with much greater safety. These facts we believe are fully demonstrated, and we hold it to be incumbent upon every company, consulting economy and safety, to make use of it instead of the old pattern.

Tennessee.

We believe that a successful effort will be made, at the present sitting of the Legislature of Tennessee, to enlist the credit of that State in aid of the numerous roads now in contemplation or in progress, in various parts of it. The works for which the aid of the State is desired, are the East Tennessee railroads, the Nashville and Mississippi River, the Nashville and Louisville, the Nashville and Tennessee River, the Mobile and Ohio, and the Memphis and Charleston railroads. A well devised system of State credit, would secure the construction of a great extent of road, and with perfect safety to the State. If this can be done, there certainly can be no objection to the State becoming indirectly a party to such works. After a road had been prepared for the iron, the State might lend its credit for this article. The iron for nearly every railroad in the United States is purchased by the sale of the company's bonds, which proves that such bonds offer good security, or capitalists would not take them. But railroad bonds, though perfectly safe, cannot be sold except at a large discount, for the reason that but little can be known of these works by capitalists, who demand a large discount by way of insurance. The bonds of the State of Tennessee, on the other hand, are as saleable in the London as the New York market, and will command a premium in either. Upon \$1,000,000, in the present state of the market, it is probable that at least \$200,000 would be saved by using State, instead of road bonds. There is this additional advantage in using the former, as these, by going abroad, tend to relieve the money market, while road bonds must be sold at home, and thus

add to the demand, and increase the rates asked for money.

Pennsylvania.

Lackawanna and Western Railroad.—This road was opened for business a few days since, and is now actively engaged in the transportation of coal to supply the cities and villages of central and western New York. The above will prove a very valuable work, not only to the magnificent Lackawanna coal fields, but to a large portion of this State, in supplying it with a cheap fuel. Through the Erie road and its branches, it can reach every part of western New York at low cost. The large amount of freight which the above road will throw upon the Erie will add materially to the receipts of the latter. The Lackawanna road also opens an outlet to this market for a large tract of fine country. Its proprietors and builders have for a long time cherished a plan of making it a part of a much shorter route to Binghamton or Elmira, than by the present circuitous one pursued by the Erie road. We soon expect to see a move made to push a road from Scranton, the southern terminus of the above, to the Water Gap, to connect with the extension of the Morris and Essex railroad to that place. Should this project be realised, a great saving would be effected in the route to Lake Erie.

New York.

Rome and Watertown Railroad.—The superintendent of the Rome and Watertown railroad states that the earnings of the road for the present month will exceed \$20,000, on a cost of \$1,000,000. At the same rate for the year, the earnings will be \$240,000. Allowing one half for expenses, the net earnings of the road will be \$120,000, or 12 per ct. on its cost. The road is just finished, and the receipts are of course small, compared with what may be expected for the future.

Sodus Point and Southern Railroad.—This road will connect with the Canandaigua and Corning railroad at Hull's Corner, 35 miles from Sodus Point, and 32 from Jefferson. Only 35 miles of new road are therefore necessary to connect Lake Ontario with the Erie railroad, and with the coal fields of Pennsylvania. The distance from Sodus Point, an important place on the lake, to the Blossburg coal fields, is as follows:

From Sodus Point to Jefferson	67 miles.
Thence to Junction	18 "
" Corning	12 "
" Blossburg or Soft Coal	20 "

117 miles.

New Brunswick.

European and North American Railroad.—At a meeting of the stockholders of the European and North American railroad company, held at St. John on the 27th ult., the following gentlemen were elected directors; Hon. J. Robertson, D. J. McLaughlin, President of Commercial Bank, Geo. Botsford, President of Central Bank, Edward Allison, W. J. Ritchie, R. Jardine and C. D. Archibald; and at a meeting of the directors, R. Jardine was chosen president.

Memphis and her Railroad.

We learn that the cars for the Memphis and Charleston railroad will be built at Memphis. Forty cars have already been contracted for.

The road to LaGrange, a distance of between forty and fifty miles, it is believed will be completed by the first of August next, if none of the contractors fail. The iron for this, T rail, 60 lbs. to the yard, will be received it is thought by the middle of next month.

Cop Waste.

Railroads and steamboat companies in want of this article will do well to examine the advertisement of Mr. Hall in another column, as we are assured that the articles he sells are of the best quality.

East Tennessee and Virginia R. R.

We learn that 73 miles of the 128, the length of the above road, have been placed under contract. The payments are to be one-half cash, and one-half in the bonds of the company. The grading is to be completed in 3 years.

Ohio and Mississippi Railroad.

Operations have been commenced upon this road. We learn from the Laurenceburgh Register, that Mr. Timanus, of Cincinnati, has obtained the contract for building a bridge across the Big Miami. One hundred men have been already placed upon the work.

The Field Practice of laying out Curves for Railroads.

BY JOHN C. TRAUTWINE, CIVIL ENGINEER, PHILADELPHIA.

We have heard so many inquiries from young engineers, for a good work on this subject, that it is with pleasure we notice this little book by Trautwine. It contains all that is required for the field operation of projecting curves; and we can recommend it with confidence as a requisite addition to the outfit of every surveying party engaged in such duties.

We owe our acknowledgements to the author for a detection of an error in a set of tables which, for many years, we have been accustomed to use with every confidence in their absolute accuracy. We refer to Gregory's eighth edition of Hutton's Tables. Hassler's Tables are so full of typographical errors that we never could use them with any confidence, although we possessed at one time a copy corrected in Mr. Hassler's own handwriting. Some of these errors are also pointed out by Trautwine; but a table of logarithms, like Caesar's wife, "should be above suspicion"—and such until now we had always regarded the eighth edition of Hutton's Tables.—*Mechanic's Magazine.*

RAILROAD BRIDGE OVER THE GENESEE RIVER.

The railroad bridge constructing just above the upper falls, will be when completed, an object of wonder and admiration. I stepped into an engineer's office, and was favored with a view of a draft of the bridge. There are to be three piers built in the bed of the river, each thirty feet high, and three more of less height to carry the bridge to the banks on each side.

Upon these will rest a frame work supported by posts two hundred and four feet above the main piers.—The distance between the piers will be fifty feet, and the whole length of the bridge over the Gulf about five hundred feet, which will be extended at the ends by an addition of five hundred feet of trestle work, making when completed an entire bridge one thousand feet in length.—*Inventors Jour.*

Indiana.

Bellefontaine Depot.—The Main Building at the Bellefontaine Depot is up to the square ready for the roof. It is built of brick, 376 feet long by 60 feet in width, for a double track inside. The office building is 55 by 30 feet, two stories high, projecting into the platform far enough to give a full view of the inside of the whole building from the lower windows. There is to be no track in front of the building. The building is located in the centre of a five acre block of the company in the northeast part of the city, and fronts a street 100 feet wide.—The ground is high. The building presents a fine appearance from the diagonal. We learn that the machine shop, 200 by 100 feet, of brick, will be erected next season, on the west end of the ground, preparatory to building the machinery of the road. This must tend to building up the northeastern part of the city with residences of mechanics, and buildings connected with the road.—*Sentinel.*

Stock and Money Market.

We are able to note a continued improvement in the price of well known stocks. Money, however, is still difficult to be obtained out of the ordinary business channels. There is as yet but little disposition to invest in new securities, and the bonds and stocks of new works are yet a drug in the market. We cannot advise our friends to come here at present for means to carry on their works. The brokers engaged in the negotiation of bonds are full to the overflowing of such as were offered a long time since, and large quantities of fresh securities are constantly being forced upon the market. There is every appearance that the present improvement will be permanent, but capitalists have not sufficient confidence in the future, to invest freely in anything not well known.

Erie Canal.—The amount received for tolls on all the New York State canals during the 3d week in October, is \$145,999 93
Same period in 1850..... 170,016 36

Decrease in 1851.....\$24,016 43

The aggregate amount received for tolls from the commencement of navigation to the 22d October inclusive, is.....\$2,775,525 31
Same period in 1850..... 2,565,956 49

Increase in 1851.....\$209,568 82

Railway Share & Stock List;

CORRECTED WEEKLY FOR THE

AMERICAN RAILROAD JOURNAL.

NEW YORK NOVEMBER 1, 1851.

GOVERNMENT AND STATE SECURITIES.

U. S. 5's, 1853.....	101½
U. S. 6's, 1856.....	104½
U. S. 6's, 1862.....	109½
U. S. 6's, 1862—coupon.....	114½
U. S. 6's, 1867.....	115½
U. S. 6's, 1868.....	115½
U. S. 6's, 1868—coupon.....	122½
Land Warrants.....	140a145
Arkansas 6's.....	52a53
Alabama 5's.....	91a92
Indiana 5's.....	83
Illinois 6's, 1870.....	65a68
Kentucky 6's, 1871.....	104½a106
Massachusetts sterling 5's.....	105a106
Massachusetts 5's, 1859.....	100½
Maine 6's, 1855.....	103
Maryland 6's.....	102½
Michigan.....	—
Mississippi.....	—
New York 6's, 1855.....	103½
Ohio 6's, 1860.....	107½
Pennsylvania 5's.....	91

RAILROAD BONDS.

Atlantic and St. Lawrence, 6 per cent.....	85
Baltimore and Ohio, 1867.....	94½
Boston and Providence 6's, 1855.....	101
Boston and Worcester 6's, 1855, convertible.....	107½
Bost., Concord and Mont. 6's, 1860, mortgage.....	87½
Cheshire 6's, 1860.....	91½
Connecticut River 6's, convertible.....	89
Erie 7's, 1859.....	96
Erie 7's, 1868.....	108½
Erie income 7's.....	93½
Hudson River 7's, 1853.....	101½
Michigan Central, convertible, 8's, 1856.....	104½
New York and New Haven.....	100½
Norwich and Worcester, mortgage, 1860.....	80a85
Old Colony, 1854.....	97½
Ogdensburg 7's, 1859.....	91
Portsmouth and Concord.....	80a85
Passumpsic 6's, 1859.....	94½
Rutland 7's, 1863.....	91
Reading mortgage, 1860.....	78
" " 1870.....	75
Sullivan, mortgage 6's, 1855.....	75
Vermont Central 6's, 1852.....	90
" " 6's, 1856.....	85
Vermont and Massachusetts 6's, 1855.....	86

RAILROAD STOCKS.

[CORRECTED FOR WEDNESDAY OF EACH WEEK.]

	Oct. 29.	Oct. 22.
Albany and Schenectady.....	89½	93
Atlantic and St. Lawrence.....	60a65	—
Androscoggin and Kennebec.....	30a35	—
Boston and Maine.....	104	103½
Boston and Lowell.....	108	109
Boston and Worcester.....	102	102
Boston and Providence.....	89½	86
Bost., Concord and Montreal.....	36	—
Baltimore and Ohio.....	67½	—
Baltimore and Susquehanna.....	34	—
Cheshire.....	47	47
Cleveland and Columbus.....	—	—
Columbus and Xenia.....	—	—
Camden and Amboy.....	—	—
Connecticut River.....	60	—
Delaware and Hudson (canal).....	109	108½
Eastern.....	95½	95½
Erie.....	84	83
Fall River.....	94½	94
Fitchburg.....	109½	109
Georgia.....	—	—
Georgia Central.....	—	—
Harlem.....	68	69½
Hartford and New Haven.....	123	—
Housatonic (preferred).....	—	—
Hudson River.....	73	73½
Kennebec and Portland.....	50a55	—
Little Miami.....	—	—
Long Island.....	15	14½
Mad River.....	—	—
Madison and Indianapolis.....	90	93
Michigan Central.....	105	106½
Montgomery and West Point.....	—	—
Michigan Southern.....	—	—
Manchester and Lawrence.....	70	—
Morris (canal).....	14½	15½
New York and New Haven.....	109	109½
New Jersey.....	—	—
Northern.....	67	68
Nashua and Lowell.....	107½	—
New Bedford and Taunton.....	108	—
Norwich and Worcester.....	57	46½
Norfolk County.....	9	9½
Ogdensburg.....	33½	32
Old Colony.....	66	65
Passumpsic.....	70½	72
Pennsylvania.....	—	—
Pittsfield and North Adams.....	95	—
Philadelphia, Wilm'gton & Balt.....	27½	26
Petersburg.....	—	—
Richmond and Fredericksburg.....	—	—
Richmond and Petersburg.....	—	—
Reading.....	56	56½
Rochester and Syracuse.....	105½	107½
Rutland.....	45	42½
Stonington.....	52	44
South Carolina.....	—	—
Syracuse and Utica.....	123½	—
Sullivan.....	15a20	—
Taunton Branch.....	108	110
Troy and Greenbush.....	90	—
Tonawanda.....	—	—
Utica and Schenectady.....	127½	127½
Vermont and Canada.....	97	99½
Vermont Central.....	27	27
Vermont and Massachusetts.....	26	25
Virginia Central.....	—	—
Western.....	103½	104
Wilmington and Raleigh.....	—	26
York and Cumberland (Pa.).....	19½	—

Indiana.

A movement is making to secure the construction of a railroad from Peru on the Wabash canal, to form a connection with the northern Indiana railroad, probably near Goshen. The line of the proposed road traverses one of the best districts in the State, and is much better able to construct the road than that from Indianapolis to Peru, which are soon to be connected by railroad, built almost entirely by the people along its line. A company has been organized for the above purpose, and steps are to be immediately taken to have the route surveyed, with a view to putting it under contract.

Page's Electro Magnetic Engine.

We had the pleasure of being present on Thursday night at an exhibition of Mr. Page's Electro-Magnetic Engine, and from a personal observation, will endeavor to give our readers some idea of its construction and uses. A number of circular helices are placed together so as to form two cylinders. These cylinders are placed in the line of their axes, but far enough apart to be out of the sphere of mutual attraction. They are connected each with a galvanic battery, so that they may be alternately charged and discharged. A bar of iron passes through these two cylinders, and according as each is charged, is drawn within its axis. The cylinders being charged alternately, the effect is to cause the bar to pass from one to the other. The induction and cessation of the electrical currents rapidly follow each other, and as a natural consequence, the bar moves with a corresponding speed. Attached to this bar of iron is a shaft, which turns a crank connected with a large fly-wheel. A band passing over this wheel, and connected with others, would set in motion a great amount of machinery. When we were present, a lever of 11 feet long was made to press upon the circumference of this fly-wheel, and upon the extremity of this lever a hundred pounds weight was placed, causing a pressure on the wheel of more than 1100 pounds. Notwithstanding this, the engine did not seem to be at all impeded in its motion. With some improvements this motive power might be applied with success to mechanical purposes, and should this be the case, it would obviate many of the objections now brought against the use of steam as a motive power. It is not liable to any of the accidents resulting from steam, and is entirely under the control of the operator. An engine moved by this power occupies less room than a steam engine, and is of much simpler construction. It is also more economical, the expense attendant upon the use of fuel being entirely done away with. There may some doubt arise as to the power of this magnetic attraction, but with a well-constructed engine it will be found sufficient for all needful purposes. This invention of Mr. Page's is undoubtedly a great invention, and we see no reason why it should not in time supersede the use of steam, at least as a propelling power.

Michigan Southern and Indiana Northern Railroad.

These roads, in connection with a short line from the Indiana State-line to Chicago, of about 13 miles, forms a continuous road from Toledo to the former place, 243 miles in length. The entire cost of both roads will be about \$4,500,000. The road was opened in September last to South Bend, 130 miles from Lake Erie. The rails have been purchased for the whole road, and are being distributed along the line. It is contemplated to have the track laid from Toledo to Chicago by the first of January, with the exception of 13 miles, from Laporte to Michigan City, (for which distance there is a plank road;) and the whole line completed in March next. We copy from the recent exhibit of the Northern Indiana company the following description of their line in that State, with its connections and branches:—

This embraces the entire main line of road from connection with the Michigan southern road, through Elkhart, Mishawakie, South Bend and Laporte, to the boundary of Illinois, about 100 miles—a line to and from Michigan city of about 25 miles, uniting with the same, and a line of 10 miles, from Elkhart to Goshen, making in all, about 135 miles.

The company hold also by lease and contract, a line from the western boundary of Indiana to Chicago, of about 13 miles.

Thus by a connection, by an existing contract, with the Michigan southern railroad, this company have a continuous line of railroads from the head of Lake Erie, at Monroe and Toledo, in a very direct course, through southern Michigan and northern Indiana, to the city of Chicago, a distance of 246 miles, and from Toledo, 243.

At Chicago, this line of road connects at the same station with "The Chicago and Rock Island railroad," to extend in nearly a direct west course, through Joliet, Ottawa, La Salle and Peru to the Mississippi, at Rock Island, 180 miles, striking that river in the direction of Iowa city and the Council Bluffs.

The Chicago and Rock Island company has been organized; the required subscriptions made to the stock, and a contract made with responsible contractors for the completion of the entire work, including masonry, grading, iron-rails and track, stations, cars and engines.

At Toledo, this line of roads unites with the great chain of railroads, along the south shore of Lake Erie, through Sandusky, Huron, Norwalk, Cleveland, Painesville, Ashtabula, Erie and Dunkirk to Buffalo. This south shore line connects at Sandusky, with the existing railroad to Cincinnati, and with the Mansfield road; at Cleveland with the road to Columbus and Cincinnati, already in successful operation, and with the line to Pittsburgh, to be opened the present season. The whole south shore line will probably be completed in the course of next season, and parts of it will be opened the present year. When opened, the journey from Chicago to New York, *entirely by railroad*, may be performed in 34 hours.

Railroad from Cincinnati to Charleston and Savannah.

The project, which, in 1836, engrossed so much attention and interest throughout the Southern and Western States, that of a railroad from *Charleston to Cincinnati*, seems now likely to be realized at a comparatively early period. The old project of the Charleston and Cincinnati railroad was founded upon general ideas of the wants of our internal commerce; but with the little knowledge which then existed as to the proper route, the limited means at command, and the slight experience which then existed in railroading, a scheme of such magnitude, involving the construction of 800 miles of railroad, most of it through a country but thinly settled, could hardly help falling through.—During the 15 years that have since elapsed, great changes have taken place. Companies having local objects in view merely, have already reached the Tennessee river, and a continuous line of railroad will soon be formed between the cities of Charleston and Savannah, and Knoxville, the chief town of East Tennessee, which is 518 from the former and 502 from the latter city. On the northern end of the line, the road is under contract from Covington to Lexington, 100 miles. From Lexington to Danville, 27 miles. Sufficient means are provided, and this link will soon be placed under contract. From Danville to Knoxville the distance is 18 miles, making the whole length between the points named as follows:—

Cincinnati to Danville, via Lexington, Ky.....	128	miles.
Danville to Knoxville.....	180	"
Knoxville to Dalton, Ga.....	110	"
Dalton to Atlanta.....	100	"
Atlanta to Savannah.....	292	"
To Charleston.....	810	"
Cincinnati to Atlanta, as above.....	518	"
Atlanta to Augusta, Geo.....	171	"
Augusta to Charleston.....	137	"
	826	

No steps are yet taken towards the construction

of the link between Danville to Knoxville; but when we consider the vast utility of a railroad communication between the south and the Ohio river, and that of the whole line, the construction of more than three-quarters is already secured, that of the part untouched, the greater portion can be built by the people on the route, and as the roads either finished or in progress, have the strongest interest in supplying this gap, we cannot believe it will long remain unfilled.

Louisville as well as Cincinnati would be connected with this route; and as both of these cities will shortly be connected with the great lakes and the Mississippi, the early completion of the line from Danville to Knoxville becomes still more important. If the people upon the line of the road could prepare it for the iron, we cannot doubt that the numerous companies interested in having the connection formed would provide the means for the article.

The great pet project of South Carolina seems at last on the eve of accomplishment, though upon a very different line and in a very different manner from that originally contemplated. The realization of this great project, which cannot fail to add very largely to the commercial importance of Charleston, and the prosperity of the whole State, will, it is hoped, have a salutary influence upon the present discontented feelings of her people.

Pittsburg and Rochester Railroad.

A strong interest is felt in Pittsburg in reference to the construction of the above road, which is there regarded a very important work for that city. A late number of the Pittsburg Gazette gives the following description of the route, dividing it into sections, to correspond to its natural features.

1st. *From Pittsburg to the mouth of the Kiskiminetas, 29 miles.*—This section is nearly level, having only the ascent of the river, two feet to a mile. Coal, salt, lime and building-stone, are the chief mineral productions. The adjoining country is fertile and populous, and would throw a large amount of trade and travel upon the road on the north bank of the Kiskiminetas, the road would cross the Pennsylvania canal, from which it would obtain a great accession of travel, and it is calculated that it will at least pay the interest upon its cost when completed to this point.

2nd. *From the Kiskiminetas to the Mahoning, 27 miles.*—This section in its general features, very much resembles the one already described. Coal is not so abundant as in the first section, but there is an abundance here. Both salt and limestone are found in considerable quantities. Iron is found in this section, and any quantity might be manufactured were there adequate demand. The only town of importance is Kittanning, the county seat of Armstrong, containing a population of about 2,000. The abundance and cheapness of coal at this place, the healthiness of the climate, and the fertility of the surrounding country, render it well adapted to become the seat of extensive manufactures. Supposing the road to leave the Alleghany river at the mouth of the Mahoning and to proceed up the latter river, (which route if found practicable is the shortest.) We shall have for the third section,—*The valley of the Mahoning, 20 to 30 miles.*—This valley is very rich in iron ore, and heavily timbered. Coal also exists in great abundance. In the range now under consideration, there are several iron furnaces, all of which yield a large return of excellent quality. The soil of the Mahoning valley, a few miles from the river becomes good, and so continues to the head of the stream

The streams is navigable for 50 or 60 miles for rafts and flat boats during freshets, but there is no ascending navigation. Near the Alleghany the country is very much broken, but at a distance of 25 or 30 miles, we reach what might be called table land over which a railroad might be carried without difficulty.

4th. *From Mahoning to Clarion about 30 miles.*—The features of this section are very different from those of the three first. The country is comparatively level, the soil good, and heavily timbered. All the larger streams are skirted with hemlock and pine; the hemlock is generally found on the lowest ground, the white pine occupying the ascending slopes, towards the tops of which it becomes mingled with oak, maple, beech, hickory, cherry, yellow pine, &c. The smaller streams are skirted with the varieties of timber last mentioned, except the yellow pine, which is only found on elevated and dry land. This is a region of great resources and is rapidly filling up in population.

5th. *From the last named point to Olean an air line of about 75 miles.*—This would probably be confined to the valleys of the Clarion and the west branch of the Alleghany. In its general feature the country through which it passes is very much like the last section. It traverses the very heart of the pine region, and it is impossible to estimate the amount of freight which could be derived from this article alone.

There are said to be extensive deposits of bituminous coal of excellent quality in the upper part of the valley of the Clarion, which will afford an important item of trade to that end of the road, and be of incalculable benefit to the people of western New York, who are altogether destitute of this mineral. It is estimated that the local trade and travel between Pittsburgh and Olean, to say nothing of the through travel and traffic, will make this one of the best paying roads in the county.

6th. *From Olean to Rochester.*—It is not necessary to speak particularly of this section, suffice it to say, that the line would pass the greater part of the way down the valley of the Genesee, one of the richest agricultural regions in the world.

The facilities offered for the construction of this route and the advantages it will possess over the present modes of communication between Pittsburgh and Rochester render it probable that it will be soon undertaken and successfully carried through.

Indiana.

New Albany and Salem Railroad.—Twenty-six miles of this road, lying between this city and Kankakee river, has been let by Mr. Gonzales, the engineer in charge of the work, to Messrs. L. and H. Kent, of New York. The contractors have their laborers engaged, and will commence operations next week. The contract is to be completed during August next. The remaining four miles this side of the Kankakee will be let in a few days.

The line proves to be much more favorable than was anticipated. Mr. Gonzales was authorized to establish a grade of fifty feet to the mile; but he has succeeded in obtaining a maximum of 42.

The survey of the route has been completed to within twenty-one miles of Lafayette, a distance of seventy miles. The line is said to be a very favorable one. Fifty-six miles of the route is a perfectly straight line, and will be the longest straight line in the world. There are but three miles of curve in the whole seventy.

We understand that Mr. Gonzales, who is prosecuting the work with all practicable despatch,

will shortly proceed to Lafayette and will survey and locate the remaining twenty-one miles. We are informed that that part of the line between Lafayette and the Kankakee will be under contract in about two months. The whole line from Lafayette to Michigan City will probably be ready for the iron during the coming year.—*Michigan City News.*

Buffalo and Brantford Railroad.

The Chicago Tribune furnishes us with the following statement in reference to the Buffalo and Brantford railroad. The capital of the company is \$600,000, 84 per cent has been paid in, and the following officers elected.

James Wadsworth, of Buffalo, President; A. D. Patchin, of Buffalo, Alexander Douglas, Fort Erie, A. Huntington and I. Cockshutt, of Brantford, Directors; William Wallace, Buffalo, Chief Engineer; James Christie, (Bank of British North America,) Brantford, Treasurer; Archibald Gilkison, Esq., Brantford, Secretary and Solicitor.

The distance of the road, will be 75 miles. The estimated cost is \$1,200,000—half of this amount of stock will be issued for and the other half bonds will be sold guaranteed by the Provinces.

The entire road has been put under contract, and work will be commenced next month. The contractor is Mr. A. DeGraff, of Dayton, Ohio. By the terms of the contract, the road is to be completed and the track laid, for the sum of \$400,000—the contractor receiving \$100,000 stock, in part payment for his work. The only considerable expenditure remaining unpaid for, is the purchase of the iron.

Townships along the line of the road are subscribers to the stock in their corporate capacity, under by-laws passed at the request of the taxpayers of the several municipalities.

Council of the town of Brantford.....	\$100,000
Municipality of the township of Brantford.....	50,000
Municipality of the township of Bertie..	40,000
Do. do. Wainfleet	20,000
Do. do. Sherbrook and	
Moulton.....	20,000
Municipality of township of Camboro...	8,000
	\$238,000

Stock held by stockholders in Canada, at Brantford and along the line..... 50,000
Stock to be issued to contractor..... 100,000
Stock held to be paid out of for right of way, and distributed in Buffalo..... 212,000

There remains then for subscription on the part of the citizens of Buffalo as their share of the stock, the sum of \$200,000, and this ensures the completion of the railroad from Fort Erie to Brantford, within the period of eighteen months.

Springfield X Roads, Pa., Oct. 24th, 1851.

H. V. Poor, Esq.,

Dear Sir—It may be interesting to some of the readers of your Journal to know what is doing in this section in railroad matters. In the connecting link of the great chain from the Atlantic seaboard to the Pacific, the "Franklin Canal Railroad" sustains a very important relation. After a series of obstacles to its progress, (which has been watched with hope and doubt by its friends and opposers,) it seems that it will soon be constructed. The line extends from Erie, Pa., to the State-line of Ohio, a distance of about 26 miles, where it connects with the "Cleveland, Painesville and Ashtabula railroad." The main features of the work are its bridges, the grading being light, no curves of more than 1.30, and most of the distance a straight line. The heaviest grade is 18 feet to the mile. The road seems to owe its origin and success to its able and indefatigable President, the Hon. John Galbraith, and in fact is generally called "Galbraith's Road." The road must be the best stock in the country, as it has no competition, from the fact

that no line can be traced south of it, owing to the peculiar configuration of the country, consequently the whole travel must pass through it.

The bridging, as I have stated, is a great item, and from the model of one, and the plans of the others, the Engineer, Alex. C. Twining, deserves much praise for originality of design, combined with economy of strength and beauty. The ravines bridged are from 800 to 1,400 feet wide, and two of them over 100 feet deep. The bridges are composed of bents 20 feet apart, and set one above the other to the top, and a combination of lattice. It is intended the cars shall pass over the road next summer, and if success attends its construction equal to its efficient management, you may have the pleasure of a trip next August. The organization of the road consists of Hon. John Galbraith, President; Wm. S. Lane, Treasurer; W. Galbraith, Secretary; Alex. C. Twining, Chief Engineer.

Railroad Injunction.

The Peru and Indianapolis railroad company have enjoined the Newcastle and Logansport railroad company from crossing the track of the former. The following are the sections in the charter of the Peru company relied upon in support of its right to prohibit any other company from crossing its track:—

Sec. 19. That when said corporation shall have procured the right of way, as hereinbefore provided, they shall be seized, in fee simple, of the right of such land, and they shall have the sole use and occupancy of the same, but not to interfere with the right of way of any railroad company heretofore incorporated; and no person, body politic or corporate, shall in any way interfere with, molest, disturb or injure any of the rights or privileges hereby granted, or that would be calculated to detract from or affect the profits of said corporation.

Sec. 31. The corporation may, by contract, admit the intersection with said road of any other railroad, turnpike or other road, or any collateral road.

The above seems to be conclusive against the Logansport company. The Legislature of the State will not probably interfere in the matter, as it is for the interest of a large portion of her people, and nearly all her railroads, that the routes from Cincinnati to Chicago should pass through Indianapolis. The Peru company, it appears, has a vested right in its track, which cannot be interfered with.

We cannot see any reason for the Newcastle and Logansport road, and it is undoubtedly for the interests of all parties that the injunction should stand. Logansport is but 18 miles from Peru, and a side cut can at a very trifling expense, be taken to that town. By building a short road from Newcastle to Noblesville, a very direct route would, in connection with the Peru road, be formed between Cincinnati and Logansport. The latter company, as we are informed, are willing that their track should be crossed at that point.

Improvement of the Navigation of the Mississippi River.

A convention was held at Burlington, Iowa, on the 15th, to concert measures for the improvement of the navigation of the Upper Mississippi. The chief obstructions, are the falls or rapids as they are termed, which occur in a number of places. The convention has been regarded with great interest by all the inhabitants residing in the vicinity of the river, or interested in its navigation. The encroachment of New York upon the trade of the Upper Mississippi valley, has aroused the people of New Orleans and St. Louis to the necessity of

taking some effectual steps to defeat the designs of their ambitious rival. We look for the proceedings of the convention with much interest as they will undoubtedly contain many valuable statistics in relation to the conference of the Mississippi river and the west.

Ohio and Pennsylvania Railroad.

We give in another place a detailed account of the opening of a further section of this road, extending ten miles west of New Brighton, or to a point 38 miles west of Pittsburg, by a continuous rail.

This new section scales the river hills by the slopes of Big Beaver, with a prolonged grade equivalent on tangent and curve to 47½ feet per mile of ascent on a right line.

The curvature of this 10 miles is chiefly on radii of 1000 feet, the minimum of curvature and maximum gradient of the road being freely applied to overcome the difficulties of gaining the summit at Darlington, on the table lands of Ohio.

This interesting extension of the road clears all the heavy work of the line, which, as is usual with the Ohio lines, is greatest in ascending from the river to the general plain of the State.

In returning from New Brighton to Pittsburg the "Salem," a little Norris' engine brought up the excursion car, 28 miles in 44 minutes including stops.

One mile was run in a minute, and 13 miles continuously in 17 minutes.

This, we believe, is about the best railroad time yet made in the west, and would do well for the fast trains on the Hudson River road.

Syracuse and Binghamton Railroad.

This road extending from the city of Syracuse to Binghamton will be about seventy miles in length. It will in conjunction with the Oswego and Syracuse railroad, thirty-five miles long, open to the New York and Erie railroad a communication with Oswego—furnishing to that road a short and direct connection with the commerce of Lake Ontario at its most important harbor.

It will also furnish to the Legget's Gap railroad, lately opened, a direct communication with the salt works at Syracuse and the lake at Oswego for its coal, and when a contemplated link of about thirty miles in length, north from Syracuse to intersect the Rome and Cape Vincent railroad at Pulaski is made, will give the railroads in the northern part of the State access to the coal fields at Scranton.

This road will also furnish in the central part of the State a convenient communication between our central and southern railroad. S.

Ohio.

The citizens of Piqua, Ohio, are making strong efforts to extend the Hamilton and Eaton railroad to that place. The people in the proposed line of the road are constructing with great liberality, and strong confidence is expressed that the project will succeed. It is said that this route will effect a saving over that by Dayton of 4½ miles, in going to Piqua, and 17½ miles in going to Greenville.

Pennsylvania.

Hanover Branch Railroad.—The Hanover Spectator says that the Hanover Branch railroad is progressing to a speedy termination. Nearly a mile of the track has been laid with rails at the lower end, and it is confidently expected that the work will be ready for the running of cars by the first of January, 1852.

Virginia.

James River and Kanawha Canal.—The section of the canal between Lynchburgh and North River, in Rockbridge county, was opened for the transportation of merchandise, on the 1st inst.

This opening carries the canal through the Blue Ridge into the Valley of Virginia, and will probably add largely to the receipts of this work.

We find it stated that Professor Tuomey, of Alabama, is about to visit Virginia, by invitation from the Governor, for the purpose of examining into the practicability of extending the James River and Kanawha canal to the Ohio.

Toronto and Lake Huron Railroad.

We gave in a recent number an account of the opening of this road. The estimated cost of the work is \$2,000,000. The means provided for its construction are as follows:—

Government guarantee of bonds.....	\$1,000,000
County of Simcoe subscription.....	200,000
Gratuity of city of Toronto.....	100,000
City of Toronto guarantee of bonds....	150,000
Individual subscriptions.....	200,000
Contractor in stock.....	100,000
	\$1,750,000
Not yet provided.....	250,000
	\$2,000,000

Texas.

In view of the probable construction of the New Orleans and Opelousa railroad, the people of Texas are moving to secure the extension of this line into that State. A convention was recently held at Bankville, Texas, moving this object. It is stated that if the road can be constructed through Louisiana, that no difficulty will be found in carrying it through the State of Texas. Already \$800,000 are raised for the construction of the road from the Sabine to the Trinity river. In Louisiana and Texas the above project is regarded as the germ of a road leading to the Pacific ocean.

North Carolina Railroad.

We learn that the entire length (223 miles) of the North Carolina Railroad is under contract, except the larger bridges, which will be let soon.—The first division is taken by one company at \$650,000, to complete and equip it.

North Carolina.

Raleigh and Gaston Railroad.—Mr. Bird, the superintendent, was in this city on Saturday, and while here, received a despatch, stating that 700 bars of iron, which he had purchased at the north, had arrived at Garysburg. Mr. B. immediately made arrangements, through the telegraph, by which the iron was probably delivered at Gaston on Monday evening. We learn that it will be immediately laid, and so much of the road as the new rail will cover, be put in thorough order. The cargo from Europe may be shortly expected, and the calculation consequently is, that it will not be many months before the whole road will be "redeemed and regenerated." This efficiency speaks well for those into whose hands the road has been committed.

We learn that there will be no cessation of the regular operations of the road, and no detention, indeed, during the progress of its re-construction.—*Raleigh Register.*

Railroad Iron.

THE undersigned offer for sale 1000 tons Railroad Iron, (about 56 lbs. to the yard,) now at Brooklyn.

CHOUTEAU, MERLE & SANFORD,
Oct. 1, 1851. 51 New st.

M. B. Hewson, Civil Engineer,
(Open to a New Engagement.)
Memphis, Tenn.

To Contractors.

OFFICE WILMINGTON & MANCHESTER R. R. Co., }
Marion C. H., S. C., October 18, 1851. }

SEALED PROPOSALS will be received until the 15th of December next, for the Piers of a Bridge across the Great Pee Dee River. The job comprises four piers, one a very heavy pier for a draw, and the sinking of cast iron hollow piles by "Dr. Pott's Pneumatic Process," for forming foundations. The plans and specifications of the piers will be exhibited by the Secretary of the Company at Marion Court House, and by the Resident Engineer, L. J. Fleming, Esq., at Wilmington, North Carolina.

WALTER GWYNN,

Chief Engineer Wilm. and Man. R.R.
November 1. Richmond, Va.

Best Cast Steel Axles & Tires, (A NEW ARTICLE.)

For Railroad Carriages and Locomotives.

THE quality of this Steel is sufficiently attested in the announcement that it has carried off the first prizes awarded at the World's competition of 1851, in London. The axles are in general use on the Continent, and are now offered in competition with any other that can be produced; and to be tested in any way that may be desired by the Engineers of the United States, either by impact or by torsion. This Steel is manufactured by Fried Krupp, Esq., of Essen, in Renish Prussia, represented in the United States by

THOS. PROSSER & SON,
28 Platt st., New York.

November 1.

Engine Waste.

CLEAN WASTE for Locomotive and Steamboat Engines, in lots as wanted; also, superior Steam Packing. Orders, with explicit directions for forwarding, should be addressed to

J. MORTIMER HALL,
36 South st., New York.

November 1. 3m

Notice to Contractors.

Atlantic and St. Lawrence Railroad.

THE Sixth and last Division of the Atlantic and St. Lawrence railroad will be placed under contract on the 10th day of November next, and proposals will be received until that date by the subscribers, at Sargeant's Tavern in the town of Northumberland, N. H.

Plans and profiles will be in readiness for examination at the Engineer's Office in Northumberland, on and after the 1st of November.

This Division extends from the Connecticut River in the town of Stratford, N. H., to the boundary line of Canada, a distance of about forty miles.

No Spirituous Liquors will be allowed on the work, and bids of contractors who have heretofore failed to pay their laborers, on this, or any other work, will not be considered.

Cash payments will be made monthly, reserving ten per cent. until the final completion of the contract.

JOHN M. WOOD & CO.
October 14th, 1851.

To Stone Masons.

THE NEW ALBANY AND SALEM RAILROAD Company have about 10,000 c. yards of Abutment Masonry to let at private contract, to be completed by the 1st of July, 1852.

To contractors who can produce testimonials of character for ability as STONE MASONS, fair, remunerating prices will be given.

Early applicants, by securing the work now offered, will gain advantages over competitors for the erection of an additional 15,000 yards, to be let out early next spring, in bridging the streams between Bedford and Michigan City, via Bloomington, Gosport, Crawfordsville and Lafayette, (the most productive and healthy region in Indiana,) by the knowledge they will have acquired of the resources of the country.

Application may be made in person, or by letter addressed to the undersigned, at New Albany, Indiana. S. B. WILSON, Engineer.
Engineer's Office, New Albany, }
Sept. 29th, 1851. }

Railroad Iron.

THE undersigned are prepared to enter into contracts now at specific prices, to deliver Railroad Iron during the coming Winter and Spring, free on board at the shipping ports in Wales, or at ports in the United States.

CHOUTEAU, MERLE & SANFORD;
Sept. 30, 1851. No. 51 New st.

Notice to Bridge Builders.

PROPOSALS will be received at the Engineer's Office at Charlottesville, Va., on the 14th of November, for the construction of a bridge over Mechum's river, on the Virginia Central Railroad. The length of the Bridge will be 350 feet, in three spans. Height of Bridge above the river 70 feet. Bids will be received on Howe's plan and Town's lattice. The work to be finished by the first of July, 1852, but the timber to be procured at once. Plans and specifications will be ready to be exhibited on the 28th inst.

T. COLDEN RUGGLES,
Civil Engineer Va. Central R. R.

Charlottesville, Oct. 11, 1851.

N. B.—Good timber may be procured in the vicinity of the line of the road, which will be in operation to a point 3 miles from the bridge.

SIX HUNDRED THOUSAND DOLLARS NORTHERN INDIANA RAILROAD 7 PER CENT MORTGAGE BONDS.

The Northern Indiana railroad company offer for sale \$600,000 of their 7 per cent. mortgage bonds with interest coupons annexed.

They are in sums of \$1,000 each, payable August the 1st, 1861, with interest at 7 per cent. semi-annually on the 1st of February and 1st of August, payable at the Mechanics' Bank in this city, where the principal is also payable, and are secured by a mortgage to Shepherd Knapp, Esq., of New York, in trust for the bondholders.

They are issued under acts of the Legislature of Indiana, authorising their issue and the mortgage as above, to secure the same. The amount of bonds to be thus issued under the mortgage, is limited to One Million of dollars, \$400,000 of which have been disposed of, and \$600,000 are now offered for sale.

The mortgage covers the whole road of the company in Indiana, and is the first and only lien thereon.

This embraces the entire line from its connection at the State line of Michigan with the Michigan Southern road (of which it is an extension) through Elkhart, Mishawaka, South Bend, and Laporte, to the boundary of Illinois, about 100 miles; a line to and from Michigan city of about 25 miles, connecting with the same, and a line of 10 miles from Elkhart to Goshen—making in all about 135 miles of road.

The company hold also, by lease and contract, a line from the western boundary of Indiana to Chicago, of about 13 miles.

By an existing contract between this company and the Michigan Southern company, a continuous line of railroads is formed from the head of Lake Erie, at Monroe and Toledo, in a very direct course through Southern Michigan and Northern Indiana to Chicago—a distance from Monroe of 246 miles, and from Toledo of 243—all to be under one superintendence and management, and for all practical purposes forming one joint interest.

At Chicago this line of road connects with the "Chicago and Rock Island road," to be extended to the Mississippi river, at Rock Island, 180 miles long, and which is under contract.

Also, with the Chicago and Galena railroad, about 84 miles of which is now about completed and in use, the entire line of which, it is expected will be completed to the Mississippi river in all next year.

Also, with the Illinois Central railroad, to run from Cairo, at the mouth of the Ohio river, to Chicago.

At Toledo it unites with the great chain of railroads along the shore of Lake Erie to Cleveland, Dunkirk and Buffalo. This whole south shore line will probably be completed in the course of the next season, and parts of it will be opened for use the present year.

The whole line of roads of this company is under contract; the grading and bridging on 60 miles are completed, and the rails laid on 50 miles of it. The iron has been purchased for the whole road from the boundary of Michigan to Chicago, and most of it is delivered on the line ready for use. The road is finished 30 miles to South Bend, to which point the cars are now running from Monroe and Toledo, and the work of laying down the rails is in active progress upon the residue of the line. The main line from the East to Laporte (some 56 miles) will be opened next month, and the whole road from Lake Erie to Chicago, in March next, when the journey from Lake Erie to Chicago, may easily be made in 8 hours.

The means for the construction and equipment of the Northern Indiana road are provided by stock and bonds.

Nearly one million of dollars are subscribed to the stock, about \$850,000 of which is taken in New York and the Eastern States, the remainder along the line of the road. An average of 50 per cent. has been paid on these subscriptions, and the residue is being regularly paid at the call of the company.

For providing the remaining means required to complete the work, the company have issued their Mortgage Bonds to the amount of one million of dollars in all, as above stated, proceeds of most of which are wanted to pay for iron rails, machinery, &c.

The mortgage empowers the trustee, in case of failure to pay either interest or principal, to take possession of the road, with its equipments, and receive its earnings, or to sell the same, on due notice, and apply the proceeds in payment.

That this road will prove one of great usefulness and profit will at once be seen by reference to a map of its line and connections, being an essential link in the great chain of railways from the city of New York to the Mississippi river along the southern extremity of the two great Lakes, traversing as it does one of the most productive agricultural regions in the United States, while its cost per mile will be less than one-half the usual cost of railroads of the same class in the Eastern States. As a local road alone, giving an outlet to the productive region it traverses, it is confidently believed that it will pay a large profit upon its cost without reference to its connections.

The proof of this is found in the earnings of the Michigan Southern railroad for the past five months which, until its connections are formed is to be regarded as a local road, and is of about equal length with the Northern Indiana road, and traverses a country not more productive, viz:—

For May, 1851. \$24,427	For August, 1851. 24,196
For June, do.... 22,511	For September, do. 35,217
For July, do.... 20,603	

Total..... \$126,954

It will be thus seen that the security offered is of the highest character.

Sealed proposals will be received for any amount not less than \$1,000, until the 12th day of November next, at 3 o'clock P. M.

Proposals may be addressed to WINSLOW, LANIER & CO., No. 52 Wall-street, or E. C. LITCHFIELD, Treasurer of the Company, No. 47 Beaver-st., indorsed "Proposals for Northern Indiana Railroad Bonds."

Twenty-five per cent. of the purchase money will be required to be paid immediately upon acceptance of the bids; and the remainder in equal payments on the 25th of November and the 10th of December next. Any purchaser will be at liberty to pay in full at once, and interest upon the bonds will run from date of payment.

Three hundred thousand dollars (one-half the amount now offered) will be disposed of absolutely and without reserve, to the highest bidders.

The company reserve the right to withdraw the remainder, if the offers are not satisfactory.

All necessary information in relation to the bonds together with maps, may be obtained by the calling on Winslow Lanier & Co., or E. C. Litchfield, at either of which places copies of the bonds and mortgage may be had.

GEORGE BLISS JOHN STRYKER,
EDWIN C. LITCHFIELD, CALVIN BURR,
HUGH WHITE, Committee of the Directory,
New York, Oct. 20, 1851.

STATE OF NEW YORK.

SECRETARY'S OFFICE, ALBANY, August 27, 1851.—To the Sheriff of the County of New York. Sir:—Notice is hereby given that at the General Election, to be held in this State, on the Tuesday succeeding the first Monday of November next, the following officers are to be elected to wit:

A Judge of the Court of Appeals, in place of Samuel A. Foot.

A Secretary of the State, in place of Christopher Morgan.

A Comptroller, in place of Philo. C. Fuller.

A State Treasurer, in place of Alvah Hunt.

An Attorney General in the place of Levi S. Chatfield.

A State Engineer and Surveyor, in the place of Hezekiah C. Seymour.

A Canal Commissioner, in the place of Charles Cook.

An Inspector of State Prisons, in the place of Alexander H. Wells.

All whose times of service will expire on the last day of December next.

Also a Justice of the Supreme Court, for the First Judicial District, in the place of James G. King, whose term of service will expire on the last day of December next.

Also a Senator for the Third, Fourth, Fifth and Sixth Senate Districts, in the place of Richard S. Williams, Clarkson Crolius, James W. Beekman, and Edwin D. Morgan, whose term of service will expire on the last day of December next.

County officers to be also elected for said County. Sixteen Members of Assembly.

A Register, in place of Cornelius V. Anderson.

A Recorder, in the place of Frederick A. Tallmadge.

Two Judges of the Superior Court, in the place of Thomas J. Oakly and John L. Mason.

A Judge of the Court of Common Pleas, in the place of Daniel P. Ingraham.

A Surrogate, in the place of Alexander W. Bradford.

A Commissioner of Streets and Lamps, in the place of Jacob L. Dodge.

Two Governors of the Alms House, in the place of Simeon Draper and Francis R. Tillon.

All whose term of service will expire on the last day of December next.

Also, there is to be elected a Justice for each of the six Judicial Districts, into which the city of New York is districted, pursuant to Chap. 614, Laws of 1851.

Yours respectfully,

CHRISTOPHER MORGAN.

Secretary of the State.

SHERIFF'S OFFICE, AUGUST 28, 1851.—I hereby certify that the above is a correct copy of the notice of the general election, to be held on the Tuesday succeeding the first Monday of November next, received this day from the Hon. Christopher Morgan, Secretary of the State.

THOMAS CARNLEY,

Sheriff of the City and County of New York.

N.B.—All the public newspapers within this county will please publish this notice once in each week until the election, and send in their bills for advertising the same as soon as the election is over so that they may be laid before the Board of Supervisors, and passed for payment.

RAILROAD SPRINGS.**Fuller's India-rubber Springs.**

THESE are now made in our own Factory, of the best materials. Each spring is guaranteed to perform the required work. Purchasers guaranteed against adverse claims.

Car Builders will save great expense by calling at the office of the Company.

23 Courtland St., New York.

To Railroad Companies.

THE undersigned has discovered and patented an imperishable, cheap, and sufficiently elastic substance, to be introduced between the sill and rail, so that the stone sill can be used in place of the wooden sill: entirely overcoming that rigidity where the rail is laid directly on stone. Address J. B. GRAY, Philadelphia.

July 10, 1851.

4m

Bridges & Brother,
DEALERS IN
RAILROAD AND CAR FINDINGS,
64 Courtlandt street, New York.

Having established a general Depot for the sale of articles used in the construction of Railroads, Locomotive Engines and Railroad Cars, we would invite your attention to our establishment. We have already in store a good assortment of CAR FINDINGS and other articles used in the trade, and feel justified in saying, that should you desire anything in our line, we can supply on terms perfectly satisfactory, and in the event of your desiring to order, you may feel assured that your terms will be as good as though you were here to make your own purchases.

Among our goods may be found Railroad Car Wheels, Axles, Jaws and Boxes, Nuts and Washers, Bolts, Brass Seat Hooks and Rivets, Window and Blind Springs, Lifters and Catchers, Door Locks, Knobs and Butts, Ventilators and Rings, Car Lamps, Coach and Wood Screws, Jack and Bed Screws and Babbitt's Metal; also Plushes, Damask, Enameled Head Linings, Cotton Duck for Top Covering in width sufficient without seams, Curled Hair and all other articles appertaining to cars.

Also a new and valuable CAR DOOR LOCK, well adapted to the Sliding Door. This is decidedly the best yet introduced.

LOCOMOTIVE ENGINE LANTERNS, the best article made in the country. Whistles, Gauge and Oil Cocks, Hemp Packing, American, Russian and Italian. We are also agents for Lightner's Patent Journal Box for Car Axles, that invaluable invention, for the economical use and preservation of Car Journals.

Coach VARNISH and Japan of the best quality. We would also offer our services for the purchase as well as for the sale of goods on commission.—Both members of our firm have had the experience of many years in the manufacture of Railroad Cars, and our Senior was a member of the well known house of DAVENPORT & BRIDGES, Car Manufacturers, Cambridgeport, Mass. With our knowledge of matters pertaining to Railroads, we feel quite confident in giving satisfaction to both buyer and seller, and hope that through assiduity and attention to any business entrusted to our care we shall merit a continuance of confidence and patronage.

BRIDGES & BROTHER.

July 22, 1851.

Lightner's Patent Axle Boxes.

THE Undersigned are Agents for, and offer for sale, *Lightner's Patent Axle Boxes*, for Railroad Cars and Tenders, which have, by thorough experience, been demonstrated to be one of the most valuable improvements ever introduced in Locomotion. The saving effected in oil alone, will in a few months pay the first cost of these boxes, independent of other advantages. They are now in use upon the following, among other roads, viz:

Boston and Worcester, Boston and Providence, Boston and Fitchburg, Nashua and Lowell, Providence and Worcester, Northern, N.H., Cheshire, Manchester and Lawrence, Concord, N.H., Concord and Claremont, Ogdensburg, (Northern, N.Y.) Stonington, New London Willimantic and Palmer, New Jersey Central, New Hampshire Central, Worcester and Nashua, Fitchburg and Worcester, Connecticut and Passumpsic, Lowell and Lawrence, Salem and Lowell, Wilton Branch, Newburyport.

Below will be found the certificates of a number of gentlemen, whose opinions will be good authority in every part of the country.

Office Boston and Prov. R. R.,
Boston, Dec. 28, 1849.

Mr. JOHN LIGHTNER,

Sir,—It affords me pleasure to say, that after two years' trial of your boxes, I am fully and entirely satisfied of their superiority over any other pattern we have used. This superiority consists in economy of oil and freedom from "heating." I have tried every pattern of box in use, of any note, and do not hesitate to say, that you have devised one which in every respect combines greater advantages than any other within my knowledge; these advantages are so manifest, that I am fitting up all

our cars with your boxes, as fast as practicable.

Annexed, is a statement of an experiment with your boxes, the result of which may be of use to your interests.

Ten passenger cars, running 72 wheels, fitted up with Lightner's boxes used 41½ pints of Patent Oil, at 50 cts. per gallon, ran 43,099 miles, equal to 5-18 pints per wheel for 43,099 miles. Speed, 30 to 40 miles per hour.

Very respectfully yours,

W. RAYMOND LEE, Supt.

I have examined the above statement of Mr. Lee, and fully concur with him in his opinion of the superiority of Lightner's box.

GEORGE S. GRIGGS,
Supt. Machine Shop B. & P. R. R.

Boston, July 26, 1849.

This is to certify that J. Lightner's axle boxes for railroad cars and locomotive tenders, have been in use on the Boston and Worcester railroad one year, and I unhesitatingly pronounce it, in my opinion, the best and most economical one in use, requiring less oil, of easy application, not susceptible of derangement, as in most kinds in use. When requiring repairs or renewal, the same may be done in one-fourth of the time usually occupied for that purpose. The box requires oiling not oftener than once a month—is kept quite free from dust, and consequently wears much longer than those generally in use.

D. N. PICKERING,
Supt. Motive Power, B. & W. R. R.

Office of Boston Locomotive Works,
December 12th, 1849.

The Boston Locomotive Company have been using J. Lightner's patent axle boxes under the tenders of their engines for several months, and find them more highly spoken of by the railroad companies that have used them in regard to economy in the use of oil, their durability and their ease of adjustment, than any other boxes which they have used. We therefore do not hesitate to recommend them to all railroad companies.

DANIEL F. CHILD,
Treas. Boston Locomotive Works.

Taunton Locomotive Works,
Taunton, July 7, 1849.

Mr. H. F. ALEXANDER,

Dear Sir,—Your favor of yesterday came to hand in which you ask what success we have met with, in using Mr. Lightner's patent box for cars, engines, &c.

We have put it in use on the Boston and Providence railroad, New Bedford and Taunton Branch railroad, Central railroad, N. J., Norfolk County, Rutland and Burlington, and as yet we have not had one complaint from them; and from what we have used of it, and witnessed, we do not hesitate to say that it is superior to anything in use for that purpose. It is simple in its construction, and easy of access, and the reservoir is held close to the shaft, and the oil and journal is perfectly secure from dust; they will run from four to six weeks without replenishing the oil. The brass in the box is changed very much easier than by any other plan that we have seen.

Very resp. yours,

W. W. FAIRBANKS, Agent.

Office Providence & Worcester R. R. Co.,
Providence, Dec. 17th, 1850.

H. F. ALEXANDER, Esq.,

Sir,—The "Lightner patent boxes" for cars and locomotives have been in use under a portion of the passenger cars and engines of this company for upwards of two years, and have given very great satisfaction.

Though combining many excellent qualities, their great superiority consists in the economy of oil.

The result of experiments upon this road shows the consumption of oil by the use of this box, to be not more than one sixth part the quantity consumed by the use of the common box.

With the common box, eight passenger cars, 64 wheels, running 90 miles per day, consumed in 12 months 520 gallons of oil, being an average of 8½ gallon per wheel per annum.

With the Lightner box the same cars running the same number of miles per day, during the same space of time consumed 73½ gallons of oil, being an average of 1½ gallon per wheel per annum.

So manifest are its advantages over any other box used by this company, it is intended to place it under all our cars as soon as practicable.

Besides the saving of oil, as they afford complete security from dust, we think them more durable than any other box in use.

Another advantage resulting from the use of this box is, cars run more easier than with the common box. The saving in fuel which it would effect, would of itself, we think be a sufficient inducement to use this box in preference to any other known to us.

Very respectfully,

ISAAC H. SOUTHWICK, Supt.
JOHN B. WINSLOW,
Supt. Machine Shop, P. & W. R. R.

Cambridgeport, April 5th, 1851.

H. F. ALEXANDER, Esq.

Sir,—This may certify that I have been engaged in the manufacture of railway cars since 1834, and have built for the different railroad companies cars of all descriptions to the amount of three millions of dollars, and have used on the above cars all kinds of journal boxes, and find that none give better satisfaction than the "Lightner patent box," both on account of the saving of oil and the arrangement for taking out and re-placing the composition by means of the sliding key, and other conveniences which no other box possesses.

Yours respectfully,

CHARLES DAVENPORT.

Worcester, March 17th, 1851.

H. F. ALEXANDER, Esq.

Dear Sir,—This is to certify that I have been for some years past engaged in building cars, and that I have tried most, if not all of the patent boxes, and have found Lightner's patent superior to all others as far as the saving of oil is concerned, also the ease with which they are fitted and exchanged in case they get out of order.

For the last three years, I have put them under all of the cars I have built, and in every instance they have given the most entire satisfaction.

Yours truly,

OSGOOD BRADLEY.

Office Union Works, So. Boston,
May 23d, 1851.

This certifies that I have applied Mr. J. Lightner's patent axle boxes to my locomotives and tenders for the past two years. I consider them superior to all others,—economical in their use, and possessing many important advantages not found in any other boxes.

SETH WILMARTH.

Office 15, R. R. Exchange, Boston,
June 1, 1851.

This is to certify, that we have known the success of Lightner's patent journal boxes upon various roads in New England the past three years, and have been led to examine their peculiar construction.—We are well satisfied of their merits, and have adopted them upon our small gravel cars, and take pleasure, as we ever have done, in recommending their use upon all roads where we are employed in the construction.

GILMORE & CARPENTER,
Contractors.

Amoskeag Manufacturing Co. Machine Shop,
Manchester, May 31, 1851.

H. F. ALEXANDER, Esq.

Dear Sir,—We are using the Lightner box on all the engines and tenders we build, and we are satisfied that it is the best box in use, and recommend the same to all those who purchase engines at our works.

Yours respectfully,

O. W. BAYLEY, Agt.

This is to certify that the Fitchburg railroad company having become satisfied of the superiority of J. Lightner's patent Axle Boxes for Railway Cars and Locomotive Tenders adopted the same

and are bringing them into general use upon their road.

One year's experience with the above improvement, has fully convinced me that there has never been anything offered to the public for that purpose which possess such intrinsic value; in fact, this is an improvement which seems to overcome all the difficulties found in all the various kinds now in use. It possesses very many advantages over all others: Some of which are [first] the first cost is much less than that of most boxes in use. [Secondly] 75 per cent is saved in oil; one gill applied to each Journal once a month, or one quart to an eight wheel car, is all these boxes require per month [Thirdly] no dust can gain access to the Journal, which is constantly lubricated with clean oil; hence the saving in repairs of Journals and composition bearings, is a matter of importance. [Fourthly,] its construction is truly simple—not complicated, having nothing liable to become loose by constant and severe service. [Fifthly] for convenience there is nothing which approaches this improvement.—The composition bearings may be removed from the Journals of an eight wheel car, by one man, and returned, or duplicates, in twenty minutes, while under the car: the same would require two men, at least half a day with other boxes in use.—The trucks and wheels using these boxes, are free from oil and dirt, usually seen upon all railroad cars, at great expense to the corporation.

NATH'L JACKSON.

Supt. Car Building and Repairs, F.R.R. Co.

Boston, March 9, 1849.

I hereby certify, that I have examined a box for Car Journals, invented by Mr. Lightner of Roxbury, Mass, and I have thought so well of it that I have adopted it on our railroad, I have known of its success on other roads.

S. M. FELTON,

Supt. F. R. R.

Office of the Central R. R., N. J., }
Elizabethtown, May 1849. }

H. F. ALEXANDER, Esq.,

Dear Sir:—Your favor, [wishing to be informed how we liked Lightner's patent axle boxes for R.R. Journals,] has been duly received; in answer we would say, we have used the boxes on Locomotive tenders one year, more or less, and on our cars some six months. I consider them the best boxes in every respect, I have ever used, or even seen used on any other roads—for safety, durability and the economy pertaining to all the details connected with the boxes and Journals of R. R. Car wheels; and we shall adopt them upon this road.

Yours Respectfully,

JOHN O. STEARNS.

Supt. Central Railroad Co., N. J.

Manchester, N. H., Nov. }
1st, 1850. }

H. F. Alexander, Sir,

I have used "Lightner's Boxes" under all the Cars of the Manchester and Lawrence railroad, and feel no hesitation in saying that I think them to be the best boxes now in use.

Yours, &c.,

THEODORE ATKINSON, Agent.

Cheshire R. R. Office, Keene, }
March 5th, 1851. }

Mr. H. F. Alexander,

Sir,—Lightner's Patent Boxes have been used on the Cheshire R. R. about a year, and have given the highest degree of satisfaction.

All the Passenger Cars now in use, and a considerable number of Merchandize Cars are furnished with them, and they will take the place of the Common Boxes on all the cars as fast as circumstances will permit.

Very Resp't.

L. TILTON,

Supt. Cheshire R. R.

Boston and Worcester Railroad, }
Boston, April 1st, 1851. }

H. F. Alexander, Esq.,

Dear Sir,—Lightner's Patent oil saving box for railroad cars, has been adopted by this corporation; we are taking out the common and substituting the

Lightner's at the rate of fifty boxes per month; it will soon take the place of all others, as it is decidedly preferable to any heretofore used by this corporation.

G. TWITCHELL, Supt.

Statement of amount of oil used on 32 8-wheel freight cars, on the Boston and Providence Railroad (with Lightner's Boxes) from March 10, 1849, to February 27, 1851, and upon 12 8-wheeled passenger cars from September 8, 1849, to February 27, 1851.

FREIGHT CARS.

Amount Oil.	No. months.	Amount Oil.	No. months.
1.—21 pts.	10	17.—23½ pts.	14
2.—19 "	6	18.—23½ "	11
3.—25 "	13	19.—36 "	21
4.—18 "	7	20.—22 "	10
5.—22 "	12	21.—38½ "	24
6.—24 "	13	22.—29 "	23
7.—20 "	11	23.—35½ "	23
8.—21 "	11	24.—37½ "	23
9.—23½ "	10	25.—51 "	23
10.—21 "	9	26.—31½ "	24
11.—20 "	9	27.—28½ "	23
12.—21½ "	11	28.—36 "	23
13.—19 "	8	29.—50½ "	24
14.—25½ "	17	30.—50 "	23
15.—20½ "	10	31.—41 "	23
16.—31 "	18	32.—39½ "	23

Total, 925½ pts. 510

PASSENGER CARS.

1.—19½ pts.	18	7.—30 pts.	18
2.—25½ "	18	8.—25½ "	18
3.—33½ "	16	9.—29 "	18
4.—19 "	15	10.—46½ "	17
5.—15 "	15	11.—9 "	9
6.—22 "	18	12.—65½ "	17

Total, 340 pts. 197

Averaging 1 4-5 pints of oil for freight, and 1 7-10 for passenger cars per month only!

All orders and enquiries promptly attended to.

BRIDGES & BROTHER,

No. 64 Courtlandt st., New York.

July 25, 1851.

Trautwine on R. R. Curves.

By JOHN C. TRAUTWINE, Civil Engineer,
Philadelphia, Pa.

JUST published, accompanied by a Table of Natural Sines and Tangents to single minutes, by means of which all the necessary calculations may be performed in the field.

This little volume is intended as a field-book for assistants; and will be found extremely useful, as it contains full instructions, (with wood cuts) for laying out, and adjusting curves; with Tables of Angles, Ordinates, etc., for Curves varying from 13 miles, down to 146 feet Radius.

A portable Table of Natural Sines and Tangents to minutes, has for a long time been a desideratum among Engineers, independently of its use in laying out curves.

The volume is neatly got up in duodecimo; and handsomely bound in pocket-book form.

Sold by Wm. Hamilton, Actuary of the Franklin Institute, Philadelphia. Price \$1.

Also, "Trautwine's Method of Calculating Excavation and Embankment."

By this method, which is entirely new, (being now made known for the first time) the cubic contents are ascertained with great ease, and rapidly, by means of diagrams, and tables of level cuttings. Thin octavo; neatly half bound, \$1. For sale by Wm. Hamilton.

June 28, 1851.

Railroad Iron.

CONTRACTS made by the subscribers, agents for the manufacturers, for the delivery of Railway Iron, at any port in the United States, at fixed prices and of quality tried and approved for many years, on the oldest railways in this country.

RAYMOND & FULLERTON, 45 Cliff st.

CORROSIVE SUBLIMATE.

THIS article now extensively used for the preservation of timber, is manufactured and for sale by POWERS & WEIGHTMAN, manufacturing Chemists, Philadelphia.

Jan. 20, 1849.

To Chief Engineers, Directors of Railroads, Canals, etc.

A Civil Engineer and Surveyor, who has been professionally engaged under the British Government, East India Company, etc., is desirous of obtaining employment as an Assistant. No objection to the South or West. Address for one month to C. E. & S., American Railroad Journal office.

August 16, 1851.

To Engineers.

A NEW WORK on the Marine Boilers of the United States, prepared from authentic drawings, and illustrated by 70 engravings, among which are those of the fastest and best steamers in the country, has just been published by B. H. Bartol, Engineer, and is for sale at the store of

D. APPLETON & CO.,

Broadway.

September 1, 1851.

Pneumatic process for making Foundations for Bridges, Piers, etc.

THE Attention of Engineers, Contractors, and Bridge Builders, etc., is directed to this method of forming secure foundations. Hollow Cylindrical piles from 8 inches to 10 feet in diameter may be sunk through sand, mud, clay, etc., to any required depth, and filled with concrete or masonry.

The efficacy and economy of the process has been demonstrated in the construction of numerous permanent works, at a much less cost than the use of any other method. (See evidence in Parliamentary enquiry, Railroad Journal, April 19, 1851.)

Contracts made, or licenses granted for the use of the invention in any part of the United States, by

CHARLES PONTEZ,

34 Liberty street, N. Y.

LOWMOOR IRON.

THE LOWMOOR IRON COMPANY having appointed Wm. BAILEY LANG their sole agent in America and Canada, he is now prepared to receive and execute all orders for Railway Tire Bars, bent, welded, and blocked Railway Tires, Axles, Piston Rods, and Boiler Plates. Also, plain, angle, rivet and every other description of Lowmoor Iron.

All communications respecting the above are requested to be sent to Wm. Bailey Lang, at his Steel Warehouse, No. 9 Liberty Square, Boston, or to the Lowmoor Iron Works, Bradford, Yorkshire, England.

30th Sept., 1851.

RAILROAD SPRINGS.

Fuller's Patent India-rubber Springs.

PRICE reduced to 50 cents per pound. The owners of this Patent now manufacture the Springs in their own Factory, and guarantee that each spring shall perform its required duty.

Purchasers guaranteed against adverse claims. They may have full confidence in the working qualities of the springs.

The suits brought against Ray & Co., will soon be brought to issue, and we await the result with satisfaction, having full confidence in the pure administration of the Laws.

The long advertisements put forth by Ray & Co. about prior invention of the spring are worthless; he has not proved prior invention, and cannot sustain his patent in a Court of Law.

For the owners of Fuller's Patent,

G. M. KNEVITT,

23 Courtlandt st., New York.

October 7, 1851.

Railroad Iron.

THE undersigned, Agents for British Manufacturers, continue to sell Railroad Iron of the best quality, and of any weight or pattern required; deliverable at any part of the United States or Canada.

They have now on hand, ready for delivery at New York:

2,000 tons of an approved pattern, weighing about 60 lbs. to the yard.

WM. F. WELD & CO.,

42 Central Wharf, Boston.

Practical and Scientific Books

PUBLISHED BY
HENRY CAREY BAIRD,
SUCCESSOR TO E. L. CAREY, PHILADELPHIA.

For sale by Dewitt & Davenport, Tribune Buildings, New York, and Booksellers generally throughout the United States and Canada.

Now being published in Twelve Parts, price 25 cents each, the **PRACTICAL MODEL CALCULATOR**, for the Engineer, Machinist, Manufacturer of Engine work, Naval Architect, Miner and Millwright.—By Oliver Byrne, Compiler and Editor of the Dictionary of Machines, Mechanics, Engine Work and Engineering, and Author of various Mathematical and Mechanical works—illustrated by numerous Engravings; forming, when completed, one large volume, octavo, of nearly 600 pages.

It will contain such calculations as are met with and required in the Mechanical Arts, and establish models or standards to guide practical men. The tables that are introduced, many of which are new, will greatly economise labor, and render the everyday calculations of the practical man comprehensive and easy. From every single calculation given in this work other calculations are readily modeled, so that each may be considered the head of a numerous family of practical results.

The examples selected will be found appropriate, and in all cases taken from the actual practice of the present time. Every rule has been tested by the unerring results of mathematical research, and confirmed by experiment, when such was necessary.

The Practical Model Calculator, will be found to fill a vacancy in the library of the practical working man long considered a requirement. It will be found to excel all other works of a similar nature, from the great extent of its range, the exemplary nature of its well selected examples, and from the easy, simple and systematic manner in which the model calculations are established.

Parts 1, 2 and 3 now ready.

American Miller and Millwright's Assistant, By W. C. Hughes. 12mo., illustrated...	\$1 00
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Booth's Encyclopedia of Chemistry. In one vol. royal 8vo., 974 pages, sheep.....	5 00
Builders' Companion. By A. C. Smeaton.—Seventy illustrations, 12mo., cloth.....	1 00
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Cabinet Maker and Upholsterer's Companion. 12mo., cloth.....	75
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Painter, Gilder, and Varnishers' Companion. New edition, 12mo., cloth.....	75
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THE Fourth Annual Exhibition of AMERICAN MANUFACTURES, by the **MARYLAND INSTITUTE** for the Promotion of the Mechanic Arts, will be opened in Baltimore on the 20th October, 1851.

The Exhibition will be held in the **SPLENDID NEW HALL** of the Institute, (fronting on Baltimore street) now being rapidly completed. Their edifice is centrally situated, chaste in its architecture, solid in its construction, and is by far the largest and most complete building in the United States, devoted to the Mechanic Arts. It may be added that this building is 355 feet long by 60 in breadth, with an average height of 68 feet, containing some twelve apartments, the largest of which is 255 feet by 60, and that the cost will be over \$70,000.

To this Exhibition, the Managers ask the attention of all engaged in industrial pursuits throughout the country, and cordially invite them to contribute specimens of their best productions for public inspection, and to compete for the prizes offered by the Institute. These prizes consist of **GOLD and SILVER MEDALS, DIPLOMAS, etc.**, which were last year distributed as follows:—*Gold Medals*, 16; *Silver ditto*, 90; *Diplomas*, 60; besides 85 articles of Jewelry, etc., to ladies. Fair play will be scrupulously observed towards all, and every facility of Steam power, shafting, fixture, labor, &c., &c., will be amply provided free of expense. The machinery will be under a special superintendent, and a fine display of it is looked for. The last exhibition of the Institute was visited by more than 40,000 persons, and with their vastly improved accommodations and alterations, this number will be doubled at the coming display, embracing many Virginians, Pennsylvanians, and other strangers from the South and West.

Joshua Vansant, President.

Ed. Needles, } Vice Presidents.

F. A. Fisher, }

Samuel Sands, Rec. Sec'y.

Wm. Prescott Smith, Cor. Sec.

F. J. Clare, Treasurer.

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(The last nine in *Italics* are the Committee on Exhibition.)

The Hall will be opened for the reception of goods on **MONDAY, 13th October**; on the next Monday, 20th, at 7 P. M., the Exhibition will be formally opened to the public, and will positively close on **Wednesday, 19th November**. Articles for competition must be in the Hall by **Thursday night, Oct. 16, unless delayed in shipment after starting in ample time**.

Those who intend depositing, will give the Committee or the Agent, notice as early as possible, stating the nature of the goods, and probable amount of room required, to exhibit them to advantage.

Circulars, containing a view of the new Hall and the full regulations of the Committee, with special information, if required, may be had promptly, by addressing the undersigned, or the Institute's Agent, J. S. Selby, Baltimore, post-paid.

ADAM DENMEAD,

Chairman Com. on Exhibition for 1851.

SUPERIOR BLACK WRITING & COPYING INK.

Jones' Empire Ink.

87 Nassau st., Sun Building, New York city.

Net prices to the trade—

Quarts, per dozen, \$1 50	6 oz. per dozen, \$0 50
Pints, " 1 00	4 " " 0 37 1/2
8 ounces, " 0 62 1/2	2 " " 0 25

On draught per Gallon, 20 cents.

This is the best Ink manufactured. It flows freely, is a good copying ink, and will not mould, corrode, precipitate or decay. Orders for export, or home consumption, carefully and promptly attended to by
THEODORE LENT.

To Railroad Companies, etc.



The undersigned has at last succeeded in constructing and securing by letters patent, a **Spring Pad-lock** which is secure, and cannot be knocked open with a stick, like other spring locks, and therefore particularly useful for locking Cars, and Switches, etc.

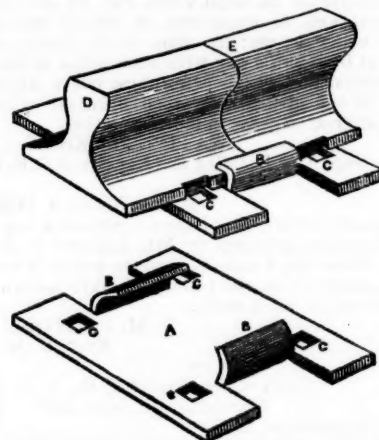
I also invite attention to an improved **PATENT SPRING LOCK**, for **SLIDING Doors** to Freight and Baggage Cars, now in use upon the Pennsylvania Central, Greenville and Columbia, S.C., Reading, Pa., and other Railroads.

Companies that are in want of a good Pad-lock, can have open samples sent them that they may examine and judge for themselves, by sending their address to

C. LIEBRICH,
46 South 8th St. Philadelphia.

May 9, 1851.

The American Railroad Chair Manufacturing Co.



ARE prepared to make **WROUGHT IRON RAIL ROAD CHAIRS**, of various sizes, at short notice.

By use of the **WROUGHT IRON CHAIR**, the necessity of the wedge is entirely done away—the lips of the chair being set, by means of a sledge or hammer, close and firmly to the flange of the rail.

The less thickness of metal necessary in the Wrought Iron Chair gives much greater power and force to the spikes when driven—and consequently a much less liability to the spreading of the rails by reason of the spikes drawing or becoming bent.

The less weight necessary in the Wrought Iron Chair, will enable us to furnish them at a cost much below that of **CAST IRON CHAIRS**.

DESCRIPTION OF THE ABOVE CUTS.

Figure 1 is a perspective view of the rail secured in the chair, and fig. 2 is a perspective view of the chair itself. D, E, are sections of two rails placed together, and secured at the joint on the chair by the jaws A, B. The chair is bolted down by spikes C, C. In fig. 2, the chair is represented as made of a single block or plate A of wrought iron.

The chair is set in its proper place on the track, spiked down, and the ends of the two rails brought together within the jaws as represented in fig. 1.

For further information address,

N. C. TROWERIDGE, Secretary,
Poughkeepsie, N. Y.

June 1, 1851.

Railroad Commission Agency.

THE Subscriber offers his services to Railroad Co's and Car Makers for the purchase of equipment and furniture of roads and depots and all articles and materials required in the construction of cars, with cash or approved credit. No effort will be spared to select the best articles at the lowest market price.

He is sole Agent for the manufacture of the **ENAMELED CAR LININGS**, now in universal use. The best Artists are employed in designing new styles, and he will make to order pieces with appropriate designs for every part of the car, in all colors, or with silver grounds and bronzed or velvet figures.

He is also Agent for **Page's Car Window Sash Fasteners**, which is preferred by all who have used it to any other.

CHARLES STODDER,
75 Kilby st., Boston.

June 20, 1851.

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